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No. 1801

AVIATION AND COSMONAUTICS

No. 5, May 1983

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30 September 1983

USSR REPORT MILITARY AFFAIRS

No. 1801

AVIATION AND COSMONAUTICS

No. 5, May 1983

Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal AVIATSIYA I KOSMONAVTIKA published in Moscow.

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PARTY SECRETARY'S ATTITUDE TOWARD SUBORDINATES STRESSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
pp 4-5

[Article by Maj A. Puchinskiy: "The Measure of Maturity"]

[Text] Daylight was fading, yet the intensity of the tactical flight exercise did not decrease. The supersonic missile-carriers continued to take off into the darkening sky.

The target appeared somewhere in the clouds, and a bright point lit up on the screens of the radar stations. The specialists detected the target in a timely manner and transmitted the information to the command post. Combat pilot 1st class Capt A. Filippov was given the mission of intercepting and destroying the enemy on the distant approaches to the objective being defended.

In making the decision for Filippov's takeoff into the night sky, the senior officer in charge had confidence in the successful outcome of the combat. Indeed, officer A. Filippov was an experienced airman, the commander of an excellent flight and the secretary of the squadron's party organization. Many times he had entered into heated engagements with the enemy. This pilot had thorough and comprehensive preparation for each nighttime sortie. Hence the results: the targets had been destroyed on the first attack and with the first rocket. Assertiveness in battle, the skill to force his will upon the enemy and the rapidity of the strike are characteristic of Capt Filippov in combat.

Numerous splashes of light flared and faded on the screen of the radar gunsight. Among these, the pilot had to search for the blip from his target and lock onto it.

It is in these minutes that the airman especially needs assistance from the ground. The ground-control intercept officer, Sr Lt Ye. Barannikov, maintained constant contact with the interceptor. The missile-carrier received the commands:

"Correct to the left 10 degrees. The distance to the target is..."

The characteristic blip appeared on the screen of the onboard radar.

"I see the target!" reported the pilot to the command post, his voice revealing a trace of excitement.

Now everything depended upon his personal skill. After a few seconds came the report over the radio:

"Launch accomplished!"

The combat had concluded. The enemy did not make it to the objective, and Capt Filippov had won his next victory. During the post-flight critique, the regimental commander held up the actions of this airman as an example to all the flying personnel.

Speaking of the superior fighting and professional qualities of communist Capt Filippov, one cannot but say something about one more very important characteristic of his nature--his sociability and his skill to find the right path to the hearts of his people. This characteristic shows up in the officer's dealings with people and in his everyday work.

On this very occasion, even though the sortie was difficult and took a great deal of effort, Aleksandr Vasil'yevich did not hurry to take a break. Other matters and concerns awaited the secretary of the squadron's party organization.

His work in the party, just like his flying, had come to be an integral part of communist Filippov's life and activities. He devotes much time to it, knowing full well that working with people is an art that one constantly has to learn. Aleksandr Vasil'yevich utilizes the slightest opportunity to expand his ideological and theoretical horizons and to meet with the aviators. The Sixth All-Army Conference of Secretaries of Primary Party Organizations is a great help for him. At this conference, it was pointed out that in solving current problems and questions, the party secretary must always find the basic causes, constantly bear the person and his specific interests in mind, have the skill to approach him, win him over, know his needs and questions, do everything to satisfy them, be uncompromising with deficiencies and actively combat them. He follows these recommendations in his work and tries to find the main link in any affair.

One time when Komsomol Sr Lt F. Kovalenko was returning from a mission, he did not pay attention to the flight control officer's command to assume the necessary altitude. As a result, his machine came dangerously close to another aircraft.

Capt Filippov decided to probe deeper into the mistake of his fellow officer. In conversation with the pilot, Filippov discovered that the mistake had occurred because of the officer's carelessness. In order to lend the necessary degree of urgency to the issue, the secretary of the party organization conferred with the commander and suggested to the secretary of the Komsomol organization, military pilot 1st class Capt M. Nasvit, that they discuss the quality of the young pilots' training at a session of the Komsomol committee and that the squadron commander be asked to speak at the session. At the same time, we should mention that within the unit, the commander, his deputy for political affairs, the party secretary and the leader of the young people jointly resolve urgent matters. On this occasion, the incident with Kovalenko was the subject of a thorough critique along party and Komsomol lines. The measures taken were to their advantage.

The education of the people is an urgent and complex matter. The chief condition for success is seen by Capt Filippov in a thorough study of Marxist-Leninist theory, the materials of the 26th CPSU Congress and the Central Committee Plenums, the guiding documents of the USSR Minister of Defense and the head of the Chief Political Directorate of the Army and Navy, the instructions of the Commander-in-Chief of the Air Force and the recommendations of military pedagogy and psychology. These make it possible for him to find the right approach to the people, to help them overcome their weaknesses and to eradicate shortcomings.

One time, junior aviation specialist Pvt V. Chemeris violated military discipline. The commander punished him. The reprimand given him, however, did not play its educational role. "What is the reason?" thought Capt Filippov. It was at the time when Aleksandr Vasil'yevich had only just begun to understand the complex science of working with people. He then turned to his political workers and his more experienced comrades--the party activists--and on their advice decided to have a detailed discussion with Chemeris' immediate supervisor.

The party organization secretary met with Sr Lt Tech Serv S. Solov'yev on the aircraft parking area. At that very moment, preliminary flight preparations were under way. Time was at a premium. The brief conversation, however, was enough to let Filippov know that the group's supervisor did not have the necessary instructor's skills and lacked the desire to work with the personnel. The squadron deputy commander for engineering aviation service confirmed the party secretary's conclusion:

"Working with people is a burden for this officer. That's the reason for all the problems. Even so, you have to look long and hard to find a specialist like him. Then I thought, "Should I not recommend to the commander that he be switched to a more suitable position?"

Filippov supported him. The commander, after listening to the opinions of the officers, appointed Solov'yev to a position that suited him better. To replace Solov'yev came an officer who had a great deal of experience in dealing with personnel.

For Capt Filippov, the solution to the problem did not end with this. Aleksandr Vasil'yevich talked with Chemeris many times and explained to him the essence and the requirements of Soviet military discipline. He convinced him of the fact that only through honest labor could he win prestige in the collective. The young soldier learned how to comprehend each step he took and became imbued with a lofty sense of responsibility for the execution of his constitutional duty.

Capt Filippov discovered that Pvt V. Bordov, an individual who had not distinguished himself through his diligence, had at one time exerted a noticeable influence on Pvt Chemeris. This suggested to the party secretary that he raise the issue of strengthening military discipline at the squadron's next Komsomol meeting. He conferred with the commander and the political worker. They approved the suggestion. The discussion at the meeting that ensued was specific and to the point. The speakers talked with interest about their personal interrelationships and true and imagined friendships. On that evening, criticism was directed at those who had said nothing and at those who liked to use loud phrases. Engineering aviation service specialists A. Malyushis, S. Lopatinskiy and M. Gribaylo felt uncomfortable. Their comrades expressed their dissatisfaction with their behavior right to their faces and demanded an accounting for their faults.

The meeting left an appreciable mark on the hearts of the aviators. After the meeting, it became easier for Aleksandr Vasil'yevich to conduct object discussions with the aviation specialists. Many of them, such as I. Boyko, T. Metreveli and D. Asadov, have become the reliable assistants of the commander, his deputy for political affairs and the squadron's party leader in rallying the military collective, strengthening discipline and increasing combat readiness.

Communist Filippov at first devoted a great deal of attention to the flight personnel, while the officer-technicians and the junior aviation specialists unintentionally fell outside his field of view. This oversight was noticed in time by the political worker, Maj N. Bagayev. He helped the young party activist to arrange his work in such a way that his influence embraced all categories of servicemen. He likewise helped him to plan thoughtfully and to implement measures during the course of the flights and on servicing days. Drawing his basis from his own experience, Maj Bagayev advised him to rely more extensively on the party activists and to see a reliable assistant in the Komsomol organization. This is what Capt Filippov began doing. This had a positive effect on the aviators' combat training. Under the favorable influence of the secretary and the members of the party bureau, those servicemen who previously committed oversights in the preparation of the missile-carriers and made mistakes in their personal conduct changed their attitude toward the service.

Time passed. Things in the squadron improved considerably. The party influence was also felt in the increased quality of mission execution on the part of the flying personnel and in the training of engineer aviation service specialists. Military comradeship was strengthened and discipline improved. The party bureau secretary himself learned and taught the party activists how to work with people.

The squadron's successes do not assuage Capt Filippov. On the contrary, he feels that the higher the goal, the greater the effort required to maintain it. This has become a fundamental principle for the officer in his service as well as in his party work.

Take, for example, the incident with Capt G. Belev. Having lost hope in advancement and independent work, he developed a careless attitude toward his duties. The communists in the squadron noticed this in time. The secretary of the party bureau investigated this thoroughly and gave Belev the opportunity to think about how he was carrying out his party and his service duty and why he was placing his personal interests above the common cause. This had its effect. The officer changed his attitude toward the service and restored his prestige through conscientious work. After a period of time, it was decided that he should be assigned to a higher position, and Capt Belev began working with even greater energy.

Aleksandr Vasil'yevich has his own faults, of course, and at times has to listen to criticism. He accepts it in a way befitting a communist. He knows that when his comrades notice his shortcomings and give advice, they are not indifferent but are very concerned about the collective and the common cause, and this makes him happy.

At the Sixth All-Army Conference of Secretaries of Primary Party Organizations it was emphasized that the strength of the party influence on all facets of the life

of the military collective depends to a decisive degree upon the party secretary's style of work. The correctness of a similar assertion is obvious. Real prestige comes to those who know the fine points of their profession better than the others, who are persistent in achieving the goals that have been set and who are honest and hard-working. All of this relates in full measure to the secretary of the squadron's party organization, military pilot 1st class Capt A. Filippov. In the officer's recommendation it is written: "He knows his business and he loves it. He does not lose himself in any situation. He is a man of principles and does not tolerate shortcomings." He is the same in the sky as he is on the ground--a pilot, a communist and a party leader whom his fellow servicemen follow in all things.

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METHODS OF INCREASING PARTY INFLUENCE IN AIR FORCES DISCUSSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
pp 6-8

[Article by Col Gen Avn L. Batekhin, member of the Military Council and chief of the Political Directorate of the Air Forces: "To Increase the Effectiveness of Party Influence"]

[Text] In the third and core year of the 11th Five Year Plan, the Soviet people are carrying out complex tasks in the building of communism with a feeling of profound optimism and complete confidence in tomorrow. In his report at the joint ceremonial session of the CPSU Central Committee, the USSR Supreme Soviet and the RSFSR Supreme Soviet dedicated to the 60th anniversary of the formation of the Soviet Union, the General Secretary of the CPSU Central Committee Comrade Yu. V. Andropov noted: "Looking back on the path covered during the 60 years by the Union of Soviet Socialist Republics, we clearly see that all our achievements and victories are inseparably tied to the activities of the Leninist party of the communists. It is this party which was and which remains that powerful and creative mobilizing force which provides for uninterrupted movement ahead in all direction of social progress."

The 26th CPSU Congress emphasized that in the period of mature communism, the role of the Communist Party--the militant and well-tried vanguard of the Soviet people--grows immeasurably in the life of society. This is an objective principle. At the same time, the further increase in the guiding role of the CPSU depends directly upon how militantly and with what sort of initiative and perspective the primary party organizations that form the basis of our party operate. It is not by accident that the Summary Report of the CPSU Central Committee to the 26th CPSU Congress assigned to the primary party organizations a vital role in carrying out great and numerous tasks in the building of communism. This relates entirely to the army party organizations as well.

The Sixth All-Army Conference of Secretaries of Primary Party Organizations which took place in May of last year was a new confirmation of the constant concern of the CPSU Central Committee for further increasing the role and the influence of party organizations within the Armed Forces and for their ideological and organizational consolidation. The communists and all the personnel of the Air Forces perceived the resolutions of the conference and the tasks set forth in the reports of Mar SU D. F. Ustinov, member of the Politburo of the CPSU Central Committee and USSR Minister of Defense, and Arm Gen A. A. Yepishev, chief of the Main Political

Directorate of the Soviet Army and Navy, to be a battle program of their activity with respect to the further implementation of the resolutions of the 26th CPSU Congress and the subsequent Plenums of the party's Central Committee and to the development and improvement of ideological and political-educational work.

At the present time, one can say with confidence that in the time since the Sixth All-Army Conference of Secretaries of Primary Party Organizations, the activity and militancy of the party organizations of the Air Forces as well as their sense of principle and initiative have increased a great deal. In close unity with the commanders and sole commanders, they carry on a persistent campaign for the quality execution of combat and political training programs, for the mastery of new aviation arms and equipment, for a further increase in vigilance and for the strengthening of military discipline.

In addition, the execution of the important tasks facing the party organizations is in many ways determined by the comprehensive and fruitful activity of the corresponding political organs which the party's Central Committee has entrusted with guiding party work in the Air Forces.

The Political Directorate of the Air Forces has begun penetrating deeper and more objectively into the life of the political organs and party organizations and has begun studying how militantly and with what kind of initiative they are operating. It is likewise studying what methods and means are being used to raise the activity of the local CPSU units to the level of today's requirements and what must be done so that each of the primary party organizations maintains a firm party line in its own collective. These questions were at the center of attention of the All-Union Scientific and Practical Conference which took place in Tbilisi and at which Comrade I. V. Kapitonov, secretary of the CPSU Central Committee, delivered a speech.

In this training year we studied the activity of a number of political organs for the management of the primary party organizations. The impression on the whole has been positive. What new and valuable things have turned up in this work? First of all, the political organs have begun to implement more strictly the Leninist norms for party life and the principles for party leadership. They have also begun to thoroughly develop the initiative and efficiency of each party organization in executing the resolutions of the 26th CPSU Congress, the May and November Plenums of the party's Central Committee and the recommendations of the Sixth All-Army Conference of Secretaries of Primary Party Organizations

At the present time, when the results of socialist competition during the winter training period are being analyzed in Air Force units and the aviators are preparing to carry out complex and vital tasks during the summer period, such work has begun to pick up noticeably. This is reflected first of all in the fact that the primary party organizations are more firmly and confidently performing as active assistants to the commanders in setting the efficient and continuous rhythm of the training process, in the organization of flights without in-flight accidents or the potential causes for them and in the mobilization of all flying personnel toward the successful fulfilment of their duties in the extensively expanded socialist competition among the troops under the motto "Increase Vigilance and Reliably Insure the Security of the Motherland!"

There has been a considerable intensification in the attention paid by the political organs to the detailed study and analysis of the educational activity of the party organizations. Characteristic of the work of the majority of such organizations at the present time are concreteness and efficiency, a deeper penetration into the essence of the combat training missions to be carried out by the communists in each party organization and the skill to determine precisely the prospects for its activity.

Take, for example, the political department of the formation in which officer S. Volod'ko works. The communists on-site always know that the officers of the political organ come to them as organizers of the work--sensitive and attentive people, yet demanding mentors capable of assisting, advising, teaching and, finally, carefully relating to progressive local experience. In this political department, it has become a rule that they work in one of the primary party organizations each month in small groups led by the officer in charge or his deputy. Beforehand, the comrades who form these groups study the requirements of the guidance documents and the state of affairs in the given party collective and the progress and quality of execution of plans for combat and political training. Only after doing this do they proceed with the work. Then, as a rule, the results of this work are discussed at party meetings and sessions of the party committees and bureaus or at seminars with political workers from the units and with the active members of the propaganda apparatus.

For example, having analyzed the state of affairs in the unit where the political worker is officer V. Andrushko, the political department came to the conclusion that the influence of the communists here on the quality of the preparation the flying personnel receive before their flights had weakened considerably. Among some of the aviators had appeared a sense of self-complacency and satisfaction with the successes they had achieved. This had an immediate effect upon the results of the execution of flight missions and, naturally, upon the results of socialist competition.

Working in the regiment and the squadrons, officer A. Belov and other workers of the political organ followed a firm rule: party activists were not to be watched over for trivial matters--their independent action was to be developed after they received explanation and instruction as to how to organize their affairs. In this instance, particular attention was devoted to the elimination of hidden shortcomings. First of all, they helped the secretary of the party committee to prepare the party meeting carefully and to run it well. At the party meeting, the communists critically and efficiently discussed the conclusions of the political department and the measures which needed to be taken to eliminate defects. A frank discussion took place regarding the kind of concrete contribution each CPSU member made toward increasing combat readiness and strengthening military discipline. The meeting obliged the party committee and the party bureau to stimulate work in cultivating a sense of responsibility among the communists for the quality of the preparation the flight personnel and the equipment receive before the flights and required that they increase their demands on those who did not have a conscientious attitude toward their party and service duties.

After this, the officers from the political department summed up and disseminated the experience of progressive commanders in the squadrons and the flights as well

as the chiefs of service groups in the organization of socialist competition among the aviators. They then had discussions with the active party members regarding the strengthening of control over the way the communists carry out their socialist obligations and their plans for individual training. After a period of time, they listened to officer Andrushko in the political department. He noted that the purposeful work of the command and the party organization had given positive results and that many shortcomings had been eliminated. The combat readiness of the party collective had been increased considerably, and the style of its work had improved. In the final analysis, all of this had an effect on raising the qualitative indicators in combat training.

The Political Directorate of the Air Forces systematically studies, summarizes and introduces into the practical work of the political organs the best forms and methods for managing the party organizations. They periodically prepare and send to the sites review materials on questions regarding the life and activity of the party collectives. In them are provided useful recommendations. The interparty flow of information upwards and downwards is acquiring more and more of an objective nature. It has become the rule today to listen regularly in the political department to the reports of the chiefs of the political organs on this or that question regarding the management of the primary party organizations.

This especially concerns ideological and political-educational work. It is well known that under the beneficial influence of the decisions of the 26th CPSU Congress and the November (1982) Plenum of the CPSU Central Committee, a process of enriching the ideological content of this work and improving its capacity to generate results is underway in the party organizations of the Air Forces. Carrying out the requirements of the resolutions of the CPSU Central Committee "On Further Improving Ideological and Political-Educational Work" and "On Further Improving Party Education in Light of the Resolutions of the 26th CPSU Congress," the political organs do everything so that the party organizations are constantly concerned about the ideological training of communists and the formation among Air Force personnel of deep ideological conviction, loyalty to military duty and constant readiness to defend the motherland and the historic achievements of socialism.

The positive experience of the ideological and political-educational work of the party organizations is constantly enriched in the political directorate of the Air Forces and is made the property of all party collectives. However, in their activity directed at the realization of the directions of the 26th CPSU Congress regarding the reorganization of many areas and spheres of ideological work there are still many hidden reserves. In particular, life urgently demands that we improve the effectiveness of party education and avoid the omissions and shortcomings contained in it. This relates first of all to the Marxist-Leninist training of officer-communists. We have facts at our disposal which show that the Marxist-Leninist training in some primary party organizations has an insufficient influence upon the formation of high political and moral qualities among party members, and that instances of an irresponsible attitude toward the reinforcement of their political knowledge does not always receive a critical party evaluation. The political organs must strive to see that an objective demand on communists to carry out one of the important requirements of the CPSU Rules--the constant improvement of their ideological level--be carried out in actuality in each primary party organization.

In this connection, one should consider that a major determining link in the activity of the political organs is the vital day-to-day organizational work in the primary party organizations and the differential management of these organizations as determined in the Statute on Political Organs in the Soviet Army and Navy.

Unfortunately, one encounters instances where certain political organs do not fully utilize the potential on hand in the interests of continuous, specific and effective management of the primary party organizations. All of their activity is reduced to directive instructions and prescriptions--a bureaucratic style of work. The political organ in which officer V. Sazonov serves, for example, has not had at its disposal for a long time information regarding the state of affairs in the party collectives, and its officers have practically withdrawn from managing them. In the Riga and Kiev Higher Engineering Aviation Schools, current and long-range plans for improving the activity of the primary party organizations have been lacking for some time, despite the recommendations of the Sixth All-Army Conference of Secretaries of Primary Party Organizations. Such a style of management does not correspond to Leninist principles and standards and therefore is not a guarantee of the successful work of the political organs in turning the party organizations into a true political nucleus of military collectives.

From this follows one of the basic requirements which we levy upon the officers of the political organs who work in the party collectives--the skill to distinguish the typical from the accidental and to see what is new and progressive. They must have the skill to avoid glossing over the surface of the facts and to delve into their essence, evaluate them, make conclusions and suggest specific methods leading to an increase in the activity and militancy of party organization.

The party organizations arrange their activities in close contact with the commanders and political workers. On the whole, this work is conducted amicably and harmoniously. Not all sole commanders, however, display the necessary degree of activity and interest in the work of the party organizations, and they frequently do not properly depend upon them nor direct their activity. As a rule, similar facts undermine the authority of the party organizations and reduce their influence upon all aspects of life and the combat training of the personnel. In connection with this, there arises the problem of further improving the ideological and political training of the communist instructors and cultivating the skill to rely upon the party collective and to direct its activity.

The constant and purposeful work with the party activists must be examined as an important direction for the activity of the party organs in managing the primary party organizations. The absolute majority of secretaries of party organizations today have a higher education. These are pilots and navigators from the number of commanders (navigators) from the flights and detachments and from other categories of communist instructors distinguished for their high degree of professional skill. Many of them by rights have become the true leaders of the party masses and organizers of vital political-educational work. These officers are I. Mal'tsev, V. Titiov, I. Plotnikov, V. Lagutin and others.

Under the leadership of the commanders and the political workers, the party activists use the methods that are characteristic for them when they participate in the realization of the plans for combat and political training based on increasing demands. In carrying out party-political work with the aviators, they direct these

individuals toward an aggressive campaign for further improving professional skills and aerial training and strive for high stable indicators in socialist competition for the quality execution of combat training missions.

Over the course of many years, for example, there have been no flight accidents nor the potential causes of such accidents on the part of the flying personnel in the aviation regiment where officer G. Filator serves as the deputy commander for political affairs. Here, through the friendly mutual efforts of the commanders, political workers and the party activists, an atmosphere of elevated exactingness and intolerance of any manifestation of carelessness has been created. Not a single case involving the violation of rules for the organization and preparation of the flights remains uninfluenced by the party. Disciplinary measures are skilfully combined with the everyday purposeful political-educational work with the people. The party organization led by officer A. Yarushchak is, in actuality, the political nucleus of the military collective.

In this connection, there are still many shortcomings in the work with the party's active members. Certain political organs are doing far from all they must do in order that communists possessing certain organizational capabilities and the skills to rally the people, lead them and evaluate the state of affairs in the party collective based on principles are elected as members of the guiding party organs, as secretaries in particular. We know of instances in which people who have not been trained and who sometimes have not even been worthy of being members in the party committees and bureaus have made their way into the membership of the party organs.

Increasing the activity and the militancy of the party organizations means first of all improving their work with respect to the training and education of the party's active members. The political organs are called upon to concern themselves constantly that all measures carried out with the secretaries of the party organizations, members of the party committees and bureaus and the party group organs be prepared at the highest ideological and organizational level so that each of them will render a definite influence upon the spiritual world of the party activists and will develop among them the necessary political, professional and moral qualities. In connection with this, more careful study needs to be devoted to the practice of individually instructing the party activists, hearing reports regarding improving ideological growth and educating the people with respect to the party's instructions. Particular attention must be devoted to the work of the party activists in trade unions, Komsomol organizations and organs of public control.

It is no secret that the seminars and meetings conducted with the active party members frequently do not give tangible results, the reason being that they are prepared in haste and their topics and the particular characteristics of this or that party organization have not been given deep thought. It is rare in some instances for seminars on specific directions for party work to be conducted with the secretaries of party organizations and their deputies. In addition to this, the categories of the secretaries are not always taken into consideration--are they full-time or part-time workers, are they experienced or have they been elected for the first time? On this basis, the political organs must devote more attention to individual work with them. They must show clearly and precisely who needs help and how much they need, then they must decide when and to whom this help must be given.

In this work, it is difficult to overestimate the visits that the officers of the political department and the Political Directorate of the Air Forces make to the troops. The workers from every political department must perceive each such visit as a most important form for the on-site training of the party actives. The problem consists of making sure that no unanswered questions remain for the secretary of the primary party organization and his deputy after the inspector or the instructor leaves the unit. It is felt that this is the essence of effective party management and the duty and obligation of every worker in the political department.

The effectiveness of party work depends to a great degree upon the quality of preparation for and the conduction of party meetings. Very important and fundamental questions regarding the activity of the primary party organizations are today submitted to communists of Air Force units for discussion. The criticisms being leveled are becoming more pointed, businesslike and principled. Testifying to this fact are the party's report-and-election meetings which took place at the end of last year. In the overwhelming majority of the speeches was heard dissatisfaction with what has been achieved. With party fervor, the communists subjected to acute criticism those party committees and bureaus which poorly consider the growing demands of the aviators' combat and political training, are satisfied with mediocre results in socialist competition and reconcile themselves with the fact of indulgence, simplification and a subjective evaluation of the level of the flying personnel's aerial and tactical training.

Combat flight training is beginning in the units. The primary party organizations are faced with great and complex tasks. They must more persistently mobilize the communists and all the personnel of the Air Forces to high-quality and effective execution of combat training plans, to the further strengthening of military discipline and organization and to the strict and precise observance of the documents regulating safe flight operations.

It is particularly important for the political organs and party organizations of the Air Forces to implement unswervingly and systematically the instructions of the 26th CPSU Congress and the resolutions of the November (1982) Plenum of the CPSU Central Committee and the Sixth All-Army Conference of Secretaries of Primary Party Organizations in an effort to raise ever higher the activity and initiative of communists in aviation units and to increase their persistence in carrying out complex and crucial combat training missions.

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MASS MEDIA EMPLOYED TO STIMULATE POLITICAL DISCUSSIONS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
pp 8-9

[Article by Sr Lt V. Zdanyuk: "Vigilance Is Our Weapon"]

[Text] On a cold, rainy day we dropped in at the duty-flight hut with Guards Maj B. Shcherbaykov, the aviation regiment's propaganda officer. The aviators had gathered in the spacious Lenin Room and were listening attentively to the radio. A conversation among international observers was being broadcast. The faces of the officers, sergeants and soldiers were fixed and serious. It was no mere coincidence, for the talk concerned the intensification of aggression on the part of the imperialist circles and their attempts to return the people to the notorious times of the "cold war" and, in particular, about the deployment of American medium-range missiles to Western Europe. Commenting on the events taking place in the world, the international journalists seemed to address the aviators in the duty flight directly: "Be vigilant and increase your combat readiness and fighting skills so that you will reliably defend the achievements of socialism at any moment."

After the conclusion of the broadcast, we talked with Guards Capt S. Baynetov, military pilot 1st class and commander of a flight rated as excellent.

"Guards Maj Shcherbakov has advised us to listen to such broadcasts when we are serving as the duty flight," he said. "We now listen to them regularly. It seems to us that it would be difficult to find a more effective and qualified commentary on the most important events and happenings in international life."

One day Guards Maj Shcherbakov, after listening to one of these broadcasts at the "round table" with the duty flight, suggested that each of the men give his opinion on the issues that had been touched upon. The conversation that ensued was interesting and to the point. As the propaganda officer later admitted, even he himself recognized for the first time certain figures that gave evidence of the intensification of imperialist aggression, although everyone knew that you could not fault Shcherbakov for insufficient scholarship or lack of information. On this particular occasion, he told the men much about the growth of military expenditures which, in the United States alone, have reached 1.5 trillion dollars over the past 5 years, that is, as much as was spent by the Pentagon over the previous 20 years. He spoke about the development of dangerous plans for the militarization of space and for the expansion the worldwide production of neutron weapons. At the end of the dis-

cussion, Shcherbakov reminded them of the necessity to increase their vigilance and combat readiness.

Since that time, one item appears with regularity in the party-political work plans for combat duty: the listening to and subsequent discussion of radio and television broadcasts in which international observers participate. One can already judge their benefits. The pilots, technicians and young aviation specialists not only listen attentively to such broadcasts, but they comment on them with a great deal of interest and speak of the tremendous value of military service. Such discussions in which, as a rule, all the aviators of the duty flight take part expand their horizons, add to their reserve of knowledge and contribute to a better comprehension of the importance of carrying out their assigned mission.

One can cite many other examples of the skilful utilization of mass-information media in propaganda work with unit personnel. This work is carried out objectively and is constantly directed first of all toward cultivating among the aviators a high degree of vigilance and responsibility for improving their combat readiness. Under conditions of service beyond the borders of our motherland, this work acquires a special significance, and mass-information media are its most important component.

Moreover, questions associated with the vigilant conduction of combat duty are discussed periodically at party and Komsomol meetings. Communist instructors systematically deliver reports and lectures before the troops in which they explain the requirements of the party regarding issues of vigilance and combat readiness and the conclusions of the 26th CPSU Congress on the growth of imperialist aggression. They likewise reveal the hostile machinations of bourgeois propaganda. During political lessons, thematic morning classes, Leninist readings and in the course of discussions before the assumption of combat duty, the members of the agitation and propaganda group and other activists remind the aviators of the necessity to be constantly on the alert.

Such mass-propaganda media as movies and television are being extensively employed in the unit. The strength of their influence, their significance in satisfying spiritual needs and their mobilizing and organizing role are here given their full measure of worth. Great popularity is enjoyed, for example, by programs such as "Time," "International Panorama" and "Today in the World," as well as by broadcasts about Soviet military leaders, the heroism of our soldiers in the years of the Great Patriotic War, our glorious military traditions and our young soldiers--the heirs to the glory of their fathers and their grandfathers.

The aviators, for example, watched the series film "The Great Patriotic War" with great interest. Guards Maj Shcherbakov advised the none-staff propaganda officers to discuss this film in their classes. He himself organized the exchange of opinions in one of the units regarding the film they had seen. The propaganda officer skilfully drew a parallel between the harsh days of the war and today's times. He directed the aviators' attention to the aggressive essence of imperialism and the necessity for observing strict vigilance and increasing combat readiness.

The aviators express a great demand for recent magazines and newspapers. No matter how far from the motherland a soldier serves, his thoughts are always of home. He is interested in everything about how the Soviet people live as they successfully carry out the resolutions of the 26th CPSU Congress and the plans of the 11th Five-Year Plan.

In their own educational work, the party activists skilfully utilize periodicals. The most interesting and pithy publications fill up the aviators' folders and serve as a good help in conducting discussions on increasing political vigilance, the Soviet way of life and CPSU foreign policy.

I chanced to attend one of these discussions. It was entitled "The NATO Bloc--The Chief Source of Military Danger in Europe." The discussion was conducted by officer Yu. Pronin. He made extensive use of the answers given by the USSR Minister of Defense, Mar SU D. F. Ustinov, to questions from a TASS correspondent, articles such as "The Wings of War and Piracy," "The West German Air Force" and "NATO Radioreconnaissance" as well as other articles published in the military press. In these articles the officer found interesting ideas and specific facts and figures. The discussion got around to the aviation equipment of the imperialist states and their combat capabilities. Having provided the characteristics of several types of aircraft in the inventory of the NATO countries, Pronin stressed that the time factor is now the most important criterion of vigilance and combat readiness.

The officer emphasized: "With today's weapons of war, success will go to those who are the first to detect and destroy the target. For us, there follows one conclusion: strive for a constant reduction in the time needed to bring a unit up to a condition of combat readiness."

The discussion interested the aviators. Many of them took part in the discussion and provided suggestions for improving this or that element of combat training. It was obvious that no one remained indifferent.

After each time the troops listen to and watch radio and television broadcasts and collectively read newspapers and magazines, the propagandists without fail strike up a discussion on the issues that form the basis of high combat readiness--moral and political conditioning, professional skill, discipline and diligence.

Actions follow the words. An atmosphere of implacability with respect to any manifestation of carelessness or negligence is maintained through the joint efforts of the commanders, political workers and party and Komsomol activists in the collective. As a result, these guardsmen vigilantly carry out their combat duty and receive high marks in executing combat training missions, competing under the motto: "Increase Vigilance and Reliably Insure the Security of the Motherland!"

In the resolution of the CPSU Central Committee "On the Further Improvement of Ideological and Political-Educational Work," the materials of the 26th CPSU Congress stress the fact that the press, television, radio and oral propaganda and agitation must to an even greater degree assist the Soviet man in orienting himself well in his internal life as well as in international events and must bring about in him the desire to make the maximum contribution to the common cause. In this guards aviation regiment, these mass-information media are skilfully utilized to cultivate among the aviators a high degree of vigilance and combat readiness.

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SIGNIFICANCE OF INTERNATIONALIST DUTY FOR NGF TROOPS STRESSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
pp 10-11

[Article by Maj V. Svichenko: "Educating the Soldier-Internationalists"]

[Text] The idea of the international fraternity of peoples which permeates the resolutions of the 26th CPSU Congress is near and dear to the Soviet people who are fighting for the triumph of communism in our multinational country. At this, the highest forum for communists, it was emphasized that the affirmation in the consciousness of the workers, primarily the young generation, of the ideas of Soviet patriotism and socialist internationalism, of pride in our motherland--the Country of the Soviets--and of the readiness to rise in defense of the achievements of socialism has been and remains one of the party's most important tasks.

The urgency of carrying out this task was reflected in the resolution of the CPSU Central Committee "On the Further Improvement of Ideological and Political-Educational Work."

This resolution stresses the fact that the importance of patriotic and international education is growing, especially in connection with the intensification of the ideological struggle between socialism and capitalism. Bourgeois propaganda attempts by every means possible to interfere with the workers' proper understanding of the interests of our socialist motherland, to undermine their faith in the inevitable victory of communism and to shake the unity of the peoples of socialist countries. It employs bourgeois nationalism as its ideological weapon. We oppose it with our own ideology and our own morality.

The issue of educating ideologically conditioned soldier-patriots and internationalists is constantly at the center of attention of the commanders, political workers and party and Komsomol organizations of the units of the Northern Group of Forces. Guided by the instructions of the Communist Party, they examine this issue as a most important direction of all ideological and political-educational work which encompasses the various aspects of the ideological and political life of the soldiers, sergeants, warrant officers and officers in the garrison and includes the entire complex of mass-political measures carried out in conjunction with the party and state organs of Poland and the soldiers of the Polish Army.

The main thing for us is the cultivation of communist conviction among the personnel, ideological steadfastness and irreconcilability toward bourgeois ideology and

devotion to the motherland, the party cause and the ideals of communism. This is a stable basis for the formation among the young soldiers of a high sense of Soviet Patriotism and proletarian internationalism. The Marxist-Leninist training of the officers, the political training of the warrant officers and the political classes with the soldiers and sergeants present extensive possibilities in this direction.

The effectiveness of the instruction, as is well known, depends to a great degree upon the group instructors, their initiative and creativity and their skill to link the theme to life in the unit and to the internationalist tasks carried out by Soviet soldiers on the territory of fraternal Poland. This is, for example, how Capt D. Pushkash organized political classes with the soldiers. In expounding upon his theme, "Combat Cooperation Among the Armies of the Fraternal Socialist Nations," he reminded his listeners of the instruction of V. I. Lenin regarding the fact that the people who have taken the socialist path of development must be sure to have close military and economic contact. Then, using specific examples from recent lessons, the officer revealed the basic directions and forms of combat cooperation among the fraternal armies. During their independent study hours, the soldiers reviewed a documentary film, "On Guard for Peace and Labor." After this, Maj V. Kiselev, a participant in the "Druzhba-82" exercise, delivered a speech to them. He told of how the brothers by class and brothers in arms carried out the missions assigned to them and how they set up their combat and political training.

During the hours of mass-political work, the students in the group visited soldiers from the Polish Army, became acquainted with their life style and attended their classes. A spontaneous, comradely conversation started up among them. The soldiers of the fraternal armies were interested in questions of improving combat readiness, political vigilance and the organization of socialist competition as well as questions relating to how the soldiers spent their spare time. This meeting was of great benefit for its participants. The Soviet and Polish troops did not only share their experience and the secrets of military skills, but they also found out a great deal about the life of the fraternal peoples and deeply sensed their responsibility for the defense of peace and socialism.

Later on there was a seminar in the group. It was lively and interesting. The aviators actively discussed the issues and skilfully linked their answers to the tasks carried out by the personnel and to the necessity for further strengthening the fraternal union of the socialist nations and their armed forces.

Capt Pushkash summarized his work experience in the unit, and then the non-staff propaganda officers followed his example.

An important form of international education is propaganda lectures. At their basis lies the disclosure of the Leninist principles of Soviet patriotism and proletarian internationalism and the contents of the materials of the 26th CPSU Congress and other party documents. Much attention is likewise devoted to propaganda about the successes of our people in fulfilling the tasks of the 11th Five-Year Plan and the international tasks of the armies of the Warsaw Pact countries. Members of the agitation and propaganda collective Col A. Borisov, Lt Col A. Panteleyev, Maj V. Yur'yev, Maj Ye. Antonov and Capt V. Mal'tsev delivered lectures on these topics before various categories of personnel.

Each of these officers is thoroughly prepared for his report and tries to insure its high ideological level, to make his speech specific and to the point and to skilfully link his theoretical positions with life in the unit. The non-staff propaganda officers in a thorough and well-reasoned manner answer those questions which concern the international education of the aviators, the international situation and the state of affairs in Poland. The effectiveness of the work conducted by the members of the agitation and propaganda collective is great. Their lectures, discussions, individual conversations and consultations help the soldiers to better realize the international nature of their service and aid in clarifying the tasks before them.

Common political days occupy a special place in the patriotic and international education of the soldiers. They are always of a topical nature and, as the party's Central Committee has recommended, the officer personnel take part. Common political days on "The Soviet Way of Life--A Great Achievement of Socialism," "On the Leninist Course of Creation and Peace" and others have caused lively interest among the aviators.

Experience shows that one of the important and effective directions in the education of the soldier-patriots is the propaganda about the heroic traditions of the Communist Party, the Soviet people and its Armed Forces. Incorporating all the best things that are inherent in the Soviet man, these traditions teach the personnel exemplary execution of the duties of a defender of the socialist fatherland, rally the soldiers in combat formation, bring them closer together through a common goal and assist them in their everyday military service. We use various forms of propaganda about heroic traditions: Leninist lessons, topical morning and evening sessions, reading conferences, periodicals, radio, movies and television. The viewing of the motion-picture serial epic, "The Great Patriotic War," reading conferences on the book by Mar SU G. K. Zhukov, "Recollections and Reflections," and the topical evening, "People of the Heroic Profession," for example, were well organized within the units. Meetings with participants in the Great Patriotic War exerted great influence on the consciousness and feelings of the soldiers. The aviators were paid a visit by former front-line soldiers Col V. Uymanov and Col A. Yuminenko who spoke of the feats of Soviet soldiers and officers in the difficult war years and of the combat fraternity of the soldiers of the Soviet Army and the Polish Army which arose on the front lines of the Great Patriotic War.

Patriotism and internationalism are also cultivated among the personnel through the active propaganda of the courageous feats of aviators. Our brother-officer Hero of the Soviet Union Maj V. Gaynutdinov, displayed a high degree of professional skill, comradely mutual aid, daring and resourcefulness in carrying out his international duty. Within the unit has begun a campaign for the right to fly on his helicopter. In the combat glory room materials have been gathered relating to his heroism, and a stand has been set up which talks about his military labor.

Officers A. Toroptsev, S. Soloshchenko, Yu. Kostyukov and Ye. D'yachenko, participants in the international assistance rendered to the people of Afghanistan, frequently speak before the personnel. In their discussions they display beauty of spirit and the high moral and political qualities of the Soviet patriot and the soldier-internationalist. All of this leaves a deep impression in the consciousness of the aviators and prompts them to be worthy heirs and successors to the combat glory of their senior comrades.

The best moral qualities displayed by the front-line soldiers during the years of the Great Patriotic War live on in the affairs and deeds of the new generation of aviators of the Northern Group of Forces. On peaceful days they frequently display their gratitude and selflessness, while in difficult moments they are always ready to come to assistance. In the north of Poland, the people know and remember the crew of Capt A. Laistsev who, under adverse weather conditions, was able to find and save two Polish schoolboys who had been carried out into the open sea on a floe of ice. There are many other instances of unselfish assistance to the Polish workers rendered by our aviators. These examples clearly characterize the Soviet man--a fearless soldier, patriot and internationalist.

In organizing and carrying out work with respect to the patriotic and international education of flying personnel and the strengthening of friendship with the workers of Poland and of cooperation with the soldiers of the fraternal Polish Army, the commanders, political workers and party and Komsomol organizations constantly take into consideration the nature of contemporary international conditions and the complexity of the internal political situation in Poland. All of this demands that we pay greater attention to further increasing our vigilance, combat readiness and organization, to strengthening military discipline as well as to interpreting the instructions of V. I. Lenin regarding the fact that we, standing in opposition to the huge front of imperialist states, represent a union that demands close military cooperation. The strengthening of such a union with the soldiers of Poland is one of the basic directions for our activity.

The results achieved in the international education of the soldiers makes us happy. We understand full well, however, that, just as in any cause, we cannot stop here. It is for this reason that we constantly increase our efforts to instruct the active party members, improve the forms and methods of ideological and political-educational work and increase its effectiveness. Toward this end we make extensive use of the high degree of political activity and the patriotic upsurge among the soldiers brought about by the resolutions of the November (1982) Plenum of the CPSU Central Committee and the celebration of the 60th anniversary of the formation of the Union of Soviet Socialist Republics.

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PARTY ORGANIZATIONS INVOLVED IN IMPROVING QUALITY OF AIRCRAFT REPAIR WORK

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
pp 12-13

[Article by Maj N. Antonov: "Reserves--In Discipline and Organization"]

[Text] That day has long been remembered by the personnel, both blue- and white-collar employees, of the Aviation Order of the October Revolution Aircraft Repair Enterprise: they turned over to an operational unit a jubilee aircraft that had received an overhaul of excellent quality. In accepting the combat aircraft, the military pilots expressed their deep gratitude to the collective for its communist shock-work.

If one were to count up all the aircraft that had been overhauled here, one would arrive at an impressive figure. It would embody almost the entire history of the development of domestic aviation. Indeed, let us think about it: first there were the I-15, I-16 and I-153; then new, formidable machines in which our pilots struck down the enemy during the Great Patriotic War. In 1944-1945, the workers not only carried out repairs in the shops, they set up operations for the assembly of IL-10 attack aircraft. What about aircraft engines? More than 3,000 of them have been overhauled, not to mention the instruments, aviation equipment, radios and aircraft weapons.

The era of jet aviation began, and the enterprise commenced overhauling modern missile-carriers. After they receive a new birth here, these aircraft faithfully serve our airborne fighting men in defending the peaceful skies of the fatherland.

And then there was the jubilee aircraft. On this day, the eyes that shone with joy and the smiles on the faces of those who celebrated the leaders of industry and heroes of labor were imprinted on everyone's minds perhaps more than anything else.

Honored veterans, Comrades M. Lakota, V. Prokhorenkov and I. Chankov, for example, have been working in this leading collective for more than 30 years. They were some of the first to master the repair of jet aircraft. This work of theirs, like the work of many other repairmen, to a great degree contributed to the enterprise being awarded the Order of the October Revolution for insuring the high-quality repair of aviation equipment. Moreover, for victory in the All-Union Socialist Competition, the enterprise was given permanent possession of the challenge Red

Banner of the CPSU Central Committee, the USSR Council of Ministers, All-Union Central Council of Trade Unions and the Komsomol Central Committee. Among the enterprise's awards are also Certificates of Merit from the Commander-in-Chief of the Air Forces and the Central Committee of the Aviation Workers Trade Union. It is no accident that this aviation repair enterprise by rights holds the titles of "Enterprise of High Industrial Skill" and "Exemplary Enterprise of the Air Forces," recorded on the Board of Honor at the USSR Exhibition of Achievements of the National Economy.

The party organization acts as the nucleus of the collective and its mobilizing force. Within the communists' sphere of influence are questions relating to the efficiency of production and the quality of the products. The party committee led by Lt Col I. Tikhonov examines these in close connection with the overall strengthening of labor, planning and production disciplines.

"We understand," said the officer in our discussion, "that this is a demand of time, and we therefore put forth the question of increasing the role of communist instructors in creating an atmosphere of exactingness in the collective. An example in this respect is shown by comrades Payusov, Kupch, Shashkov and others. In word and deed they contribute to the formation of a healthy moral and psychological atmosphere in the units. The communists, in their turn, do everything so that the party organization in reality is a reliable command support."

The party leader was correct. The party committee has rendered much and effective assistance to the command in developing and introducing at the enterprise a integrated system for the quality-control of labor and production. Taking active part in these measures are many engineering-technical and blue- and white-collar workers. Thus, quality days seemed like a good idea. On the initiative of the party committee, they are now conducted regularly. On such days in the shop supervised by officer L. Telepnev, the production managers, as usual, first explain to the people the tasks for the day, then assign to the young specialist their more experienced comrades. In the process of the work, the administration and the party activists devote much more attention to the efficient organization of labor and the rhythmicity of the work. Let us say, for example, that one of the sections is lagging noticeably. The managers try to establish the cause right then, and, as a result, there are no losses of work time and labor productivity is not reduced.

One would think that this is something new. The whole point of the matter, however, is that on quality day, the shop supervisors, leading workers and party activists led by their own secretary, V. Sakharov, do not lose sight of those small details which are usually not noticed--the workers' appearance, the length of smoke breaks, and so forth. The shop supervisors feel, however, that the most important thing is carefully prepared and effective critiques. It is in these critiques that the distinguishing feature of quality day lies.

The entire complex of measures being carried out gives good results: lately, the quality indicator for repairs has improved even more, and the number of potential accident factors attributable to the flying personnel at the enterprise has decreased. At the present time, many of the workers have been awarded the honorary title of "Distinguished Quality Worker." Among them are veterans of labor and participants in the Great Patriotic War--I. Domorat, S. Gnatyshin and Ye. Novosad--and aviation-repair Komsomol members A. Morozov, Ya. Martynyuk, O. Gladyak and others.

The shop for the repair of aircraft instruments supervised by officer N. Serdyuk has for a long time maintained leadership in socialist competition. This collective is noted for the fact that, on the initiative of the party bureau headed by communist V. Petriv, it was one of the first enterprises to review and improve its program for the professional training of workers in the major specialties. Here they introduce the scientific organization of labor and the more refined production processes.

At the November (1982) Plenum of the CPSU Central Committee it was stressed that the value of a high degree of organization and discipline for each specialist is now increasing immeasurably. Remembering this, the communists of the shop strictly demanded labor discipline from the violators at their own meeting. They listened, in particular, to the reports of their comrades, Yu. Pavlyuchenko, N. Potyuk and B. Levitskiy, about what they have done to improve the rhythmicity of production and the quality of repair work. Deadlines were set for the elimination of deficiencies and strict monitoring of the implementation of the planned measures was established.

The improvement of the organization of labor and the expansion of the work-team form of such organization has become one of the effective methods for strengthening discipline. In what lies its advantage? It lies primarily in the fact that there is an increase in the collective responsibility for the final results of the work. There are such work teams with new organization and methods of payment in the shop as well which utilize a coefficient of labor participation. Workers who produce an inferior product or who violate labor discipline are penalized materially. In their joint work in a common cause, the workers' skills improve, a sense of management is established and conscientiousness increases. This collective has been the winner many times over in socialist competition. Good things are being said about such masters of their work as B. Kovalishin, B. Strotskiy, I. Bublik and others.

The command and the party and professional organizations in the shop use all available reserves for strengthening discipline and increasing responsibility among the people for the work entrusted to them. In particular, socialist competition for the right to repair the jubilee aircraft with which we began our story is utilized in an effort to do so.

In the execution of the tasks facing the enterprise and in the strengthening of labor, planning and production discipline, a leading role belongs to the communists and their personal example. Let us tell you about a member of the party committee, the secretary of the shop's party organization and senior production foreman N. Shishkin, a recipient of the Order of Friendship of Peoples, who arrived at the enterprise as a sixteen-year-old boy in the first year after the war. The section which he now heads was one of the first to become exemplary. Nikolay Yermolayevich by rights is considered the best-experienced instructor of young people. Many of his students have become leaders of production and work-team supervisors. Among them is D. Syrdir. His work team is one of the best at the enterprise. Secretary of the Komsomol bureau and deputy of the regional Soviet of Peoples Deputies of Workers I. Knyazev is also a student of N. Shishkin.

M. Mikhnovskiy, an aggressive efficiency expert, communist shock worker and recipient of the State Prize, enjoys well-deserved prestige in the collective. He has been working at the repair enterprise for almost a quarter of a century and for

more than 20 years has supervised a work team that adjusts radio-communication and navigational equipment. Communist M. Mikhnovskiy sets the same tone in production as he does in social activities. It was not by accident that he, as a member of the plant committee, was entrusted with one of the important portions of the work--the summary of progressive experience. In our conversations, he talked at length about the people, telling about their work and successes with love. For example, in speaking of the achievements of communists I. Andreyev, V. Kruchinin, M. Okhrin and others, Mikhnovskiy stressed that they were made possible thanks to the high professional skill, discipline and personal responsibility of these people for the work entrusted to them.

The chief of the production bureau, communist V. Zemlyanoy, has been working at the enterprise for more than 20 years. Vladimir Georgiyevich has to his credit more than 10 new methods for organizing the repair of aviation equipment. Among them is a production-line method for the repair of interchangeable parts and assemblies. The economic impact from the introduction of this method has amounted to hundreds of thousands of rubles over the course of a few years.

It would be possible to say much about the honest, efficient and hard-working people from this leading repair enterprise. At the entrance to the plant grounds have been hung portraits of the leaders of socialist competition. The young workers who are beginning their path of labor learn from their instructors how to live and work according to Lenin's principles. The conditions for this exist in this honored collective.

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HELICOPTER CREWS TRAIN UNDER MOUNTAIN CONDITIONS

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pp 16-17

[Article by Col Yu. Protasov: "Over the Mountains"]

[Text] The tactical flight exercise was in full swing. The helicopter crews led by military pilots 1st class Capt I. Bormotov and Capt A. Kvach were given the mission of landing an assault force in the enemy's rear area. As it was, the commander of the motorized rifle battalion had decided to destroy a heavily fortified strong point and seize a mountain pass by means of simultaneous attacks from the front and the rear.

The helicopters lifted smoothly off the concrete. Captains Bormotov and Kvach were experienced airmen who had to their credit hundreds of hours of flying time under daytime and nighttime instrument flying conditions. Pilot-navigators Sr Lt A. Kulikov and Sr Lt M. Svatikov were likewise excellent crew members. The helicopters were prepared for flight by skilled flight technicians--Sr Lt Tech Serv I. Vityuk, specialist 1st class, and Sr Lt Tech Serv V. Kochegin, possessor of a master's rating. Behind these men were years of intensive training and selfless military labor.

The helicopters climbed to their assigned altitude and assumed the calculated course. Below were the mountains, covered with a light haze. The huge mountain peaks floated by one after another. The monotony of the terrain made the task of maintaining orientation noticeably complicated. The helicopters, however, made their way to the terminal route point flawlessly. The flight leader, Capt A. Kvach, reported to the command post from time to time on passing the checkpoints.

Up ahead were billows from the explosions of shells and mines and the frequent flashes of rounds being fired. A fierce battle was underway on the ground. The crew members were paying the utmost attention. Indeed, the enemy would not pass up the chance to fire upon the helicopters. Moreover, it is possible to fit out antiaircraft gun positions in the mountains in such a way as to make their detection from the air difficult.

The pilots skilfully carried out a maneuver to avoid the antiaircraft defenses. The helicopters would first climb steeply, then dive and turn sharply. The people onboard understood these changes in aircraft attitude. The troops knew the true

measure of their pilots' flying skills. The most difficult part, however, lay ahead. The landing area, if one can call a patch of land sown with rocks a landing area, was very small. On one side the landing site was bordered by a wall of rock, on the other by a steep precipice.

The helicopters began their pre-landing descent, and the assault troops pressed up against the windows. The ground drew ever closer. The wheels lightly touched the ground, and the assault troops leaped from the open door and joined the battle on the run. The defenders did not expect an attack from the rear and were therefore unable to put up strong resistance. The strong point was destroyed, and the way through the mountain pass was opened. The helicopters took off and assumed a reciprocal course. After some time had passed, they landed near the command post of the officer in charge of the exercise.

It was with some satisfaction that Col A. Lavrenyuk replied to the question "How did the flyers perform today?"

"Excellent!" After a moment's silence, he added, "Things would have been difficult for the motorized riflemen and tankers without aviation. Lt Col Petrichenko will speak in greater detail about the actions of the pilots."

Officer Petrichenko is an experienced airman who at one time he had flown on long-range bombers. Later on, life dictated that he become a helicopter pilot. What exercises had he not had occasion to participate in! Many times the aviators in the unit he led worked in close cooperation with motorized riflemen and tankers, becoming models of combat training.

"The situation in today's exercise is very complex and is as close as possible to that found in actual combat," said Lt Col Petrichenko. "For this reason, the aviators must work intensively. For example, Maj Kramarevskiy's subordinates have already flown several sorties and destroyed their targets with precision. Pilots from the squadron where Capt Korolik is the deputy commander for political affairs carried out an early morning strike against enemy strong points. They then carried out another mission--they landed a tactical assault force high in the mountains."

The helicopter pilots' success became possible primarily because of the daring and competent actions of their commanders, the high degree of aerial and tactical training of the group leaders and all the pilots, as well as their ability to work in precise coordination with the artillery troops, motorized riflemen and tankers. Of course, the moral-political and psychological training of the troops plays a great role.

The practice of combat training in mountainous terrain confirms the fact that helicopters are an effective means of combating a strong enemy. Moreover, the effect of their actions is greater the more competently and well thought-out the commander's decisions with respect to their application and the more initiative and persistence shown in the actions of their crews.

We have become convinced of the truth of this with our own eyes. On the approach to the target, Capt Kvach took into consideration the wind's force and direction and reduced the influence of the negative factors to a minimum. The pair of helicopters brought down heavy fire on the target.

What else is characteristic of the crews' actions? There is the confidence they have in the accuracy of their calculations and their excellent group coordination. The flight leaders always feel a sense of satisfaction when their wingmen precisely maintain the given combat-formation parameters and react to the commander's slightest maneuver. This is achieved through intensive military education, daily training and the cultivation among the aviators of an elevated sense of responsibility for their aerial and tactical training.

Again another pair of helicopters were airborne. Having executed the last maneuver, Capt Kvach saw before he began his run-in that the clouds of smoke and dust from the explosions of the shells and the mines had risen up into a dense wall across the helicopters' path. This did not disturb him. Executing a climb, he passed over the upper edge of the clouds, and the wingman repeated the leader's maneuver. The moment had come when the skills they had acquired in mastering the training program and firing at targets outside of visible range using lateral reference points came in handy.

The helicopters arrived at the start line. Over the radio sounded the words:

"Attack!" And then, "Fire!"

Clouds of smoke rose in the area of the target. The target was destroyed. Capt Kvach commanded over the radio:

"Turn left!"

The helicopters climbed out of the attack and assumed a reciprocal heading.

Lt Col Petrichenko commented upon the second sortie thusly:

"In actual combat, two outcomes are possible: either you destroy the target, or they shoot you down. In the training process, therefore, we try not to allow indulgence and simplification. I would like to stress the following: he who does not consider the requirements of modern warfare, who does not develop within himself initiative and resourcefulness and who does not strive to be disciplined is inevitably caught by failure and will not achieve success. Important here also is the role of the forward air controller. Under mountainous conditions, where the combat action of the ground forces are, as a rule, local in nature, their assistance is difficult to overestimate. We send the most experienced aviators to the forward detachments of ground units. We devote the most serious attention to their training for an upcoming exercise. I must say that in the overwhelming majority of cases, they react quickly to the complications that arise suddenly during the course of an exercise. The officers help the crews arrive at the target undetected and to search for it. They inform the crews of changes in the battlefield situation and carry out other critical tasks. Here, also, the precise interaction of the crews with the forward air controllers is very important. The success of the actions of the helicopter pilots depends to a great degree upon how the commands are perceived and how accurately the target designations are given."

With the aid of a portable radio set, the forward air controller, having visually acquired and identified his helicopters, indicates the direction to the target in

terse commands. After the crew acquires the target, he gives permission for the attack. Under mountainous conditions, various factors have a negative influence on radio communications. In training for the sortie, therefore, the aviators strive beforehand to develop laconic and precise radio exchanges. When informing the crews about the situation on the battlefield, the forward air controller uses brief, enciphered phrases, the meanings of which are known to the crews.

Maintaining one's orientation in the mountains is a rather complicated affair. It is for this reason that in the process of training for exercises, the officer in charge of the exercise also enlists the aid of the aviators in reconnoitering the area in which the exercise will be carried out. The characteristic landmarks on the terrain which will be used by the ground units and helicopter crews in battle are chosen.

Together with the commanders of the ground units, the aviators perform the most probable variants and learn how to determine the optimum disposition of forces for carrying out a specific mission. Close cooperation expands the horizons of the participants in the exercises and contributes to more aggressive and intelligent actions on the battlefield. Offering a unified concept in training, the helicopter crews orient themselves in the dynamics of combat operations more quickly and accurately and receive good psychological training. They understand that flights under mountain conditions have their own specific peculiarities and that painstaking training on the ground cannot be ignored.

In conclusion to our conversation, Lt Col Petrichenko said:

"Experience acquired during tactical exercises helps the pilots to really sense the need for a thorough analysis of their actions and for a detailed preliminary development of methods for executing assigned missions based on the tactics of the ground forces."

Our helicopter, piloted by Capt A. Kvach, rose from the ground. In the window we saw how the helicopter of Capt I. Bormotov continually followed us. The countdown had begun for the next combat training sortie, a sortie that would test their courage and skill.

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METHODS SOUGHT TO CONSERVE COMMUNICATION-EQUIPMENT RESERVES

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
pp 18-19

[Article by Col N. Minakov, signal regiment commander: "Zealously and Thriftily"]

[Text] The address of Lt Col V. Kroshka, "Are the Reserves Exhausted?" (AVIATSIYA I KOSMONAVTIKA No 2, 1983), touched upon important issues of the combat activity and life of soldiers' collectives and the conservation of material resources. I would like to continue the discussion and share some of my experience and observations.

In marking Radio Day, the personnel of our regiment improve their skills and increase their vigilance and combat readiness. We have at our disposal modern means of communication, a high-quality material and technical training base and well-equipped signals training areas which, of course, cost a great deal in labor and money expended. In training and service, the aviators strive to display thrift and economy,

"The economy must be economical"--this is the motto by which the soldiers in our unit are guided. The commanders and political workers in the units concentrate particular attention on the integration and intensification of the training and educational process, on the timely display and efficient realization of unused reserves and on the careful maintenance, storage and competent use and exemplary servicing of equipment, weapons and military property. Much is being done to extend the between-maintenance operation periods of vehicles and radios and to conserve money and materiel, fuel, electric power and POL supplies. It is our deep conviction that to be economical means to carry out a tireless search in directions that will make it possible to rapidly find the correct method of carrying out an economic task with a minimum expenditure of manpower and resources.

Socialist competition serves as a solid aid in this matter. In the battalion in which Lt Col A. Kalashnikov is the commander and Maj V. Matsay serves as the technical supply officer, for example, there is a specific item in the collective's contracts regarding the strict observance of economy procedures and a thrifty attitude toward the expenditure of material resources. The right-wing competition in the regiment has totally resolved to preclude the premature removal of units and assemblies from radio and radio-relay stations as well as the removal of telegraphic equipment and other communications gear. It has likewise resolved to reduce the expenditure of power-equipment reserves by 5 percent, to conserve 4,000 kWh of electric power over the course of the year and to conserve no less than 3 percent of the overall annual maximum allowance for mechanized transport reserves.

During the flight-training period, many of our specialists have been given the goal of extending the service life of special-purpose vehicles and of conserving motor-vehicle resources, fuel and other materials. Under the leadership of the commanders and the chief of motor-vehicle service, V. Nezhentsev, they unremittingly improve professional skills. In improving the quality of vehicle servicing, they fight to reduce the expenditure of spare parts and skilfully restore batteries and parts which have outlived their service life.

One can always find many latent reserves for the conservation of material resources. Take, for example, the repair of equipment. As is well known, units and assemblies that have exceeded their maintenance intervals are subjected to disassembly and inspection for defects. All of these pieces wear out in different ways: some wear out until they are totally unfit, others after slight renovation can still be used to train the young soldiers. In our units, a purposeful campaign is being waged for conservation, and specialists treat all the units, assemblies and mechanisms in a thrifty and zealous manner. Everything that is serviceable--resistors, condensers and other radio parts, in particular--is not thrown away but is turned over to a warehouse or repair shop.

Unfortunately, one encounters some people who, without thinking, scrap serviceable parts without desiring to repair them: they say that new parts will be given. Figures that exceed the established quotas are frequently mentioned in the orders from these people that arrive at the corresponding regimental services. Headquarters is training such officers and warrant officers to be absolutely sure to take into consideration the replaceability factors for these units and assemblies and to objectively consider their condition.

The campaign for all-out economical operations is constantly at the center of attention of not only our headquarters officers and the unit commanders, but also of the party and Komsomol organizations. Through their common efforts, we are taking all measures to set up a reliable defense against mismanagement and waste.

A considerable saving, as is well known, is provided by ingenuity and the streamlining of operations, by progressive methods for the operation of communications equipment under field conditions and its power requirements and by the careful treatment of training aids. The most serious significance is attached to these issues in the regiment. High-quality training complexes, trainers and simulators have been built in the units which make it possible not only to conserve combat-equipment resources but also to conduct lessons and training in an environment that approximates combat as closely as possible. We examine the technical creativity of the soldiers as an important untapped reserve for the conservation of resources and the improvement of combat readiness.

The commanders, political workers and party and Komsomol organizations of the units always consider the fact that the active participation of the personnel in the innovators' movement contributes in every way to the enrichment of its theoretical knowledge and to the strengthening of creative goal-seeking. On the initiative of the unit's party committee, the best specialists, including Engr-Lt Col P. Shkel', Maj A. Borisov, Maj A. Onishchenko, masters of communications Warrant Officers P. Rosov and V. Yesipov and others, conducted additional classes with the soldiers in an effort to improve organizational methodology and the conduction of

scheduled maintenance work. As a result, the specialists have succeeded in improving considerably the quality of repair work and the adjustment and servicing of equipment. This is a direct saving of material resources.

The conservation of resources in our combat-training activities is perhaps the most promising direction. Indeed, each hour of operation of a modern radio set or other piece of equipment is counted in dozens and even hundreds of rubles. In order to achieve an appreciable saving of resources (without harming combat readiness, of course), a decisive campaign for a reduction in the time needed to trouble-shoot equipment and eliminate defects is being conducted at the company and platoon level. The detection of a malfunctioning part, of course, is not all that simple. Occasionally, this can only be done on a piece of equipment when it is working. As a consequence, such a task is most quickly dealt with by a highly qualified specialist who is fluent in circuit analysis and has a solid knowledge of the physical processes taking place in them.

There is another point which we consider. For example, there are several self-contained circuits at radio stations. In order to predict malfunctions in some of them, it is necessary to keep the others under load. At one time, however, some of the less-experienced specialists did not take this into consideration. In order to avoid similar oversights, we have begun to teach the soldiers methods for determining defective components using characteristic signs. As a result, we have been successful in gradually eliminating the errors. Nowadays, the average time needed to trouble-shoot a malfunction has been reduced to a minimum. Thanks to the skills that the specialists have acquired, they have achieved a considerable saving of operational radio-equipment resources by using the equipment at reduced outputs.

The commanders and communists in the unit clearly recognize that a saving of material resources is achieved only when the training is organized in a methodologically correct manner with tasks that gradually increase in complexity and when each training session, class and lesson is preceded by careful and thorough preparation.

The class instructors in the units are now not limited to a discussion of some unit, assembly or mechanism or their interaction. They do not pass up the opportunity to direct the attention of their subordinates to the superior operational characteristics and combat qualities of domestic equipment. They conduct specific discussions about the skilful and thrifty way the soldiers utilized communications equipment during the years of the Great Patriotic War and the kinds of results the units' best specialists have now achieved in the operation of this equipment. Without a doubt, this lends greater educational significance to the classes.

Of course, it is more difficult to conduct such classes than, let us say, to simply get one's subordinates to comprehend just the tactical and technical data. In order for the training to be effective and convincing, the instructor must do some thorough work. He must have a detailed understanding of training aids, must study the corresponding literature and give some thought to the progress of the economic operation in the company or battalion. The benefit from the training will then be many times greater. As a rule, our soldiers exhibit heightened interest toward such lessons.

Before he proceeds with the execution of practical problems using communications equipment, each specialist must work out his actions in detail on the trainers, electrified circuits and mock-ups. As a result, the radio operators carry out all their combat training missions successfully and conserve resources.

Practice has shown that the generally accepted sequence of training for the specialists--at first, the communication and assimilation of knowledge, then the acquisition of skills--is not the best sequence. The effectiveness of the training minute and, consequently, the intensification of the instruction rose considerably when professional training began to be conducted using a methodology that employed the parallel acquisition of knowledge and skills, and then the perfection of these skills. This makes it possible to begin training earlier directly on the simulators and the training equipment and thus gain additional time for developing quotas.

Classes are conducted in the following manner. Platoon personnel are broken up into groups of five or six in such a way that the general educational level of the groups is approximately the same. This is done in an effort to increase the effectiveness of competition among the groups and to get an objective comparison of the results they achieve.

Each signals specialist carries out his practical work according to specially developed subject tasks written on a card. This list indicates the operations, the unit, the sequence of operations and the final result. After practicing their individual tasks, the groups switch over to mastering the quota as a whole. The senior members of the groups must analyze the progress of the solution of the tasks and the fulfilment of quotas as well as evaluate the actions of the signals specialists based on the conservation of equipment resources during the process of each training session.

I would like to emphasize that the precise planning carried out by the commanders of the units is reflected in graphic form as a list showing the content of the subjects in each discipline, the order in which they are to be studied as well as the mutual connection between them. This makes it possible to condense the training time to the maximum degree possible and to avoid parallel work in the study of fundamental questions relating to the care, servicing and operation of communications equipment.

The chiefs of the services and the communists render appreciable assistance to the battalions in improving the quality of the training and in the conservation of material resources. After analyzing the routes to be followed to the signals training areas and the reserve positions, they came to the conclusion that the routes could be shortened considerably. True, they then had to incur additional expenses, but they subsequently managed to reduce considerably the vehicle mileage on the field trips, to conserve POL supplies and to gain back the time needed to deploy the equipment under field conditions.

The creative search for methods and techniques of conserving communications equipment resources while simultaneously improving the effectiveness of the training process and the quality of duty execution continues. Here the analytical activity of the commanders and political workers in the units acquires no small significance. For these individuals, the field, range and training center serve as the best research laboratory where the students work out problems of radio-telegraph operating

service and where a stubborn campaign is under way to meet quotas. Here is where the students improve methods of continuous communication and efficient flight support as well as control over the units.

The questions of economy and thrift and the effectiveness of training are constantly at the center of attention of the regimental party committee. Lt Col P. Klebanyuk, Maj V. Yerokhin, Capt A. Gordeyev, Warrant Officer V. Starodubtsev and other members of the party committee delve deeply into the essence of this matter and aggressively appeal to the soldiers to observe a policy of economy and call upon the communists to follow strictly the requirements of the Party Rules: to protect and augment public and socialist property--the basis for the might and prosperity of the Soviet motherland.

Working in the units, the members of the party committee regularly analyze the progress of the campaign for economy and thrift and a zealous attitude toward public and military property. Together with the secretaries of the primary and company party organization, officers V. Ul'yanov, P. Klebanyuk, A. Borisov and N. Kaydalov systematically conduct classes and instruction. Recently, for example, a seminar was held on the subject, "The Party Concern for a Thrifty Attitude Toward Communications Equipment."

The active party members in the regiment persistently strive so that each soldier in the unit thoroughly understands: each gap in his knowledge, oversight, low level of technical skill or any shortfall can have a negative influence not only upon the equipment's combat readiness, but also can lead to an unnecessary expenditure of material and resources and the premature breakdown of expensive equipment.

Questions of thrift are constantly at the center of attention of the group and the public monitoring posts. The public monitors systematically conduct spot checks on the quality of the repair and servicing of the equipment and the condition of the spares and control and measurement instruments. They likewise monitor the expenditure of electric power and POL supplies. Having uncovered deficiencies, they efficiently implement measures to eliminate them, and their successes are immediately brought to the attention of the entire collective.

In realizing the instructions of the 26th CPSU Congress as to how the economy must be economical, the soldier-signals specialists in the regiment struggle for the further improvement of combat readiness and for the effective utilization of each training minute with a zealous and thrifty attitude toward communications equipment.

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NEW BOOK CRITICAL OF IMPERIALIST INTERVENTION IN THIRD-WORLD NATIONS

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[Article by Maj Ya. Ren'kas, candidate of historical sciences: "Colonialism Changes Its Appearance"]

[Text] The purifying storms of the national liberation struggle have fundamentally altered the situation in the countries of Asia, Africa and Latin America. After long years of drudgery in colonial shackles, their peoples have found freedom.

The imperialists, however, do not wish to reconcile themselves to the progressive development of these young states and stubbornly defend the remnants of their possessions and, at the same time, use neocolonial methods to attempt to impede the economic and social progress of the liberated peoples. Neocolonialism represents an enormous danger for developing nations. Imperialism seeks to impose upon them its own conception of world orders--such a conception as would justify neocolonial piracy and the methods of dictation and violence and would free its hands for suppressing national liberation movements.

This is the subject of the book by A. Bulatov, published by Voenizdat.*

The struggle of the peoples of the countries of Asia, Africa and Latin America for their liberation, stresses the author, was difficult. Imperialism did not wish to part with the colonial provinces which brought it fabulous returns and sought to use force of arms to keep them for itself. Many oppressed peoples had to wage fierce wars of national liberation. This was the case in Viet Nam, Korea, Algeria, Cuba and in a number of other nations. In the places, however, where things did not come to armed action, national liberation was achieved not through the kindness of the colonialists, but through the decisive struggle of the broad masses of the people.

In the postwar period, more than 80 colonial countries have won their political independence. There are today, however, still more than 30 million people who experience the oppression of colonial and racist regimes. These are the peoples of the Virgin, Mariana, Caroline and Marshall Islands who are oppressed by American imperialism. These are also the populations of Hong Kong and the Solomon and Falkland (Malvinas) Islands which, at one time, had been siezed by England. They are

*Bulatov, A. A., "Neocolonialism in a Military Tunic", Moscow, Voenizdat, 1982

the inhabitants of New Caledonia, Martinique and Guiana, which belong to France. Under colonial slavery are the African population of Namibia, illegally occupied by the Republic of South Africa, as well as the natives of the Republic of South Africa itself who are subjected to the most cruel discrimination.

The collapse of the last colonial regimes, conclude the author, is inevitable. Such is the logic of history, the logic of the steadily deepening world revolutionary process.

The concrete factual material summarized in the book indicates that imperialism does not wish to back off without a fight. In order to achieve its goals, it uses modern means of armed violence. Recent events undeniably testify to this fact. In only the first half of 1982, Israel undertook wide-scale aggression in Lebanon with US support, England displayed military actions in the South Atlantic by siezing the Falkland (Malvinas) Islands and the Republic of South Africa continued its aggressive machinations in Southwest Africa.

In convincing examples, the author reveals the methods and means employed by the imperialists for maintaining and strengthening their positions in the liberated countries. For example, one of the most popular methods is the formal concession of political independence to former colonies while actually retaining within them the economic, financial and military positions of a parent state. In 1946, for example, the Philippines were declared an independent republic. In doing so, however, the United States imposed upon them one-sided economic and military treaties which have been maintained up to the present time. Before it granted independence to Gabon, Senegal, Togo and many other of its former colonies, France entangled them in treaties that limited the independence of these states. England, after having created the British Commonwealth of Nations (today, the Commonwealth) in 1931 which includes 44 nations, likewise tries to keep them subjugated.

The union of political efforts of the neocolonialists in the internal reaction in these countries represents a great danger for young national states. Such a union pursues a goal of maintaining the actual dependence of liberated nations upon imperialism. In doing so, the neocolonialists count chiefly on implanting pro-imperialist governments in them. The United States, in particular, has rendered and continues to render support and assistance in every way possible to dictators and juntas in Chile, Paraguay, Uruguay, Guatemala, El Salvador, Haiti and other developing states. In so doing, the imperialists pursue their own selfish goals: the intensification and expansion of neocolonialist intervention in countries where the regimes in power are opposed to the people.

The neocolonialists are not averse to such methods as setting one group of liberated people on another. The country of Pakistan, for example, aroused by international and internal reaction, has repeatedly unleashed military actions against India. The neocolonialists utilize situations of conflict in the relations among developing nations in their own interests and incite intertribal hostility. Stepping forward then in the role of "mediators" and "peacemakers," they impose upon the hostile sides a solution to the disputed issues which is profitable for them.

Imperialism carries out its strategic missions in the area of the national liberation movement on an ever-widening scale and through economic methods. Having been forced out of the area of direct ownership of sources of raw materials, the foreign

capitalists seek to maintain indirect control over them. They have expanded the system of long-term contracts for the purchase of raw materials, the chief buyers remaining the countries that had previously owned these resources. In many cases, the Western monopolies remain co-owners of these joint companies and impose upon them contracts for the control of nationalized enterprises, assume marketing functions, and so forth. As a result, despite the considerable weakening of the positions of the foreign monopolies, they continue to wrest large profits from the exploitation of the resources of developing nations.

The author of the book directs the reader's attention to the fact that the neocolonialists assign a special role to methods with the help of which they attempt to weaken the authority of socialist nations in the area of the national liberation movement and to drive a wedge into relations between the liberated and socialist states. In this endeavor, however, imperialism has not been able to achieve any noticeable successes. The honest and sincere internationalist policies of the Soviet Union and the other states of socialist cooperation and the support given by them to peoples struggling both against neocolonialist maneuvers as well as against the open attacks of imperialism are understood in the developing nations. The practice of modern international life confirms the fact that these countries, as in the past, have trusty allies in the countries of socialist competition.

The book, "Neocolonialism in a Military Tunic," convincingly reveals the attempts of imperialism to stifle the revolutionary liberation movement and calls upon us to increase our vigilance. It undoubtedly will be helpful for commanders, political workers and agitators in their political-educational work.

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WARTIME RECONNAISSANCE MISSION OVER BERLIN RECOUNTED

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[Article by Engr-Lt Col (Ret) Ye. Smoldyrev: "A Special Mission"]

[Text] On the morning of 26 March 1945, a most experienced aerial reconnaissance crew--Sr Lt V. Gavrilov, Sr Lt M. Samushchenko and Sr Sgt A. Inozemtsev--was summoned to the command post of the 72d Independent Air Reconnaissance Regiment. In those days, the Soviet troops had arrived at the approaches to the capital of the Fascist Reich. The combat operations for the unit's aviators were round-the-clock and exceptionally intensive. The command at the front constantly required more accurate data on the enemy. Time after time the air reconnaissance pilots took off from a front-line airfield near Poznan.

When the members of the crew appeared at the regimental command post, they were addressed by the deputy chief of the Main Headquarters of the Air Force, Lt Gen Avn D. Grendal'.

"A crucial mission has been entrusted to us," he said. "It is necessary to carry out the aerial area photography of Berlin and to identify the enemy's system of defenses. I hope you understand the importance of this aerial photograph?"

Yes, they did not require any special explanation: the decisive battle was being prepared--the advance on the Fascists' last lines of defense.

After some time had passed, crew commander Sr Lt Gavrilov took off in his Pe-2, equipped for conducting reconnaissance. The day turned out to be clear and cloudless. Seeing the reconnaissance crew off on their flight, someone joked:

"The visibility is a million by."

When the aircraft had attained an altitude of 8,000 m and passed over the front seething with fire, however, the aviators saw that the expanse of territory was cloaked in thick gray smoke. This, however, did not alarm them. The camera on-board the aircraft was a "haze" camera and was not bothered by the conditions. The aviators were worried about something else. The enemy capital was covered by a potent antiaircraft defense system. Messerschmitts patrolled the air constantly. The city and its outlying areas harbored innumerable antiaircraft-battery fire po-

sitions. To make matters worse, the crew had to carry out the photography while flying in a straight line at medium altitude. There was no question of fighter cover for the reconnaissance aircraft--this would only have increased the possible losses. They had to rely on skill and experience alone, and the crew did have enough of these--each of them had to his credit many dozens of combat sorties, complex reconnaissance missions and engagements with enemy fighters.

The pilot and navigator, while calculating the flight route, tried to consider all the details which could complicate the execution of the upcoming mission. It was decided to photograph Berlin while flying from south to north over the center of the city. The approach from this direction to the planned point for the beginning of the photography made it difficult for the enemy to detect a lone aircraft flying out of the sun at a high altitude.

Navigator Sr Lt Samushchenko, while carrying out visual observations and checking the map, guided the pilot's actions with precision. Soon the outline of the large city appeared. At that moment, gunner-radio operator Sr Sgt Inozemtsev suddenly reported:

"Commander, two pairs of fighters on the right!"

Gavrilov himself had already seen the enemy aircraft. He estimated the distance--about 6 km. Had the fighters noticed them? It seemed as if they had not. In any event, however, he turned off slightly to the left in order to be sure to get out of the Fascist pilots' field of vision.

After a few minutes had passed, the Berlin airfield appeared distinctly up ahead and below. It was an excellent reference point for the crew! Now came the most critical moment. Gavrilov changed course abruptly and began descending in order to increase speed before they reached the assigned altitude for taking the photographs. As the navigator had assumed, the direction of the strong wind proved to be favorable--it seemed to urge on the red-starred aircraft.

Having assured themselves that they had rolled in on the necessary final approach, Samushchenko engaged the camera. In one pass, the area photograph encompassed nearly the entire city.

The city blocks of Berlin rushed by beneath the wing. Below shone dimly the network of rails at the railroad terminal. Then came the Reichstag, the park nearby and the dark bend of the River Spree. A thought flashed through the pilot's mind: it was obvious that this was the very place to which the main blows of the advancing Soviet troops would be directed.

Meanwhile, an enemy antiaircraft battery camouflaged among the ruins opened up intense fire. The shells started bursting in the immediate vicinity of the aircraft. Despite this, Gavrilov continued to maintain his run-in heading.

And then, according to the distinguishing outlines, it became clear that the outskirts of the city were finally behind them. Then the reconnaissance crew was on the lookout for another danger--"Messers." A pair of Me-109's rushed in pursuit of our aircraft. Each member of the crew distinctly understood the responsibility for delivering the valuable reconnaissance information.

"Inozemtsev, keep your eyes open!" said the commander to the gunner.

The commander began maneuvering the aircraft in order to make it impossible for the Hitlerite pilots to assume a favorable position for an attack. The gunner-radio operator came to his assistance at the necessary moment and chased off the attacking "Messers" with bursts of machinegun fire. The skill and interaction of the crew members finally decided the outcome of the battle. The enemy pilots were unable to keep the brave reconnaissance crew from seeing the mission through to the end.

The films that they brought back proved to be very valuable. They were used to prepare large-scale photographic plotting boards. A portion of them were given over to our allies in the war with Hitler Germany--the American and British commands.

Soon afterwards, the infantry, tankers, artillerymen and pilots struck crushing blows against the capital of the Fascist Reich. On their maps were accurately marked the targets which they had to destroy. This was the great service performed by Sr Lt Gavrilov's crew.

The courageous reconnaissance aviators celebrated Victory Day in overthrown Berlin. They felt a special excitement when they walked down the streets which they had seen from the air and which, on that March morning, bristled with fierce fire.

Years have passed. Vasiliy Rodionovich Gavrilov is still in the army. He is a colonel, an experienced instructor of the young generation of airmen. Mikhail Fedosovich Samushchenko and Aleksey Ivanovich Inozemtsev have gone into the reserves and labor in the economy. Their front-line tempering remains for them even today a trusty companion in life, while their military exploits and labor accomplishments are an example of service to the fatherland.

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GUARANTEE OF WORK QUALITY SOUGHT IN TECHNICAL MAINTENANCE UNITS

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pp 30-31

[Article by Guards Engr-Sr Lt A. Zaytsev, deputy chief, technical maintenance unit:
"From the Technical Maintenance Unit--With a Guarantee"]

[Text] It was early morning. The airfield and the aircraft parking areas were covered by a light mist. On the work pad of the technical maintenance unit, routine maintenance operations were in full swing. Flight safety and the squadron's combat readiness depend to a great degree upon the quality of this work. The specialists labor diligently and strictly observe technical discipline. The most tense moment of the flight training had arrived--the crews of the long-range missile-carriers had come to the execution of the most complex aspects of the program. For this reason, the troops in the technical maintenance unit had more work to do as well--more aircraft started coming in for preventive maintenance checks.

Our aircraft are not delayed. This formidable equipment falls into skilled and solicitous hands. Thanks to the conscientious work of the officers and warrant officers, the technical maintenance unit has held the rank of outstanding for more than 10 years now. For its competent operation of the modern missile-carriers, the unit has been awarded several prizes from design collectives.

The efficient rhythm of the work is insured by the specialists' high degree of organization and discipline, the extensive application of dispatching and the introduction of the scientific organization of labor. In the last two to three years, all technical maintenance unit spaces have been reorganized. New production stands and laboratories have been created.

Earlier, for example, we did not have a place where the specialist could check the units and assemblies of power installations. This caused certain difficulties and led to delays in the work. Now such a laboratory has been introduced and is functioning successfully. Group chief Guards Sr Lt Tech Serv V. Markelov and his subordinates have renovated a laboratory for monitoring-and-recording equipment. Moreover, a new shop for the repair and servicing of aircraft emergency egress equipment has been fitted out. This was not simple to do. Displaying creativity and purposefulness, however, Guards Sr Lt Tech Serv Ye. Bikkert and Soviet Army employee Ye. Gritskevich managed to deal with the commander's difficult assignment. Guards Warrant Officer V. Golovunin distinguished himself in designing the premises.

With every passing day, socialist competition expands within the unit for the right to be called a leading group or the best specialist. We also devote a great deal of attention to improving the technical equipping of the work areas. Dependent upon this to no small degree are the quality and efficiency of the work of those individuals who carry out routine maintenance and an entire complex of other measures on aircraft while extending the service life of these machines.

Much has also been done recently to teach first-line repair to the personnel of the technical maintenance unit, especially under field conditions. In each group, innovators led by CPSU member Guards Sr Lt Tech Serv M. Zalepukin have fitted out the work areas for the front-line repair of combat equipment. Front-line experience from the last war as well as local military conflicts unleashed by the imperialists testify to the importance of the rapid restoration and turn-around of damaged combat equipment. Today, aviation specialists must frequently undergo severe tests of their technical maturity.

Recently, for example, due to pilot error, the right landing-gear strut and outboard wing panel were damaged during a landing approach. There were those who doubted that it would be possible to correct the problem using local resources. The engineers, however, concluded after inspecting the aircraft's systems that the aircraft could be put back into commission in the technical maintenance unit.

There were significant grounds for such a decision, chief among which was the fact that the soldiers in the unit were highly qualified specialists--every fourth man wore the honorary badge of master. Such people are the pride of the unit. Thanks to their persistence, initiative, creative attitude toward their work as well as the timely introduction of advanced and progressive methods into the practice of aircraft servicing, the quality of routine maintenance is improving. Setting the tone in competition, the masters display an example of the competent operation and repair of complex aviation equipment. Following the example of the best, the other soldiers strive to work efficiently.

The repair of this aircraft, of course, brought many troubles for our specialists, but those who had occasion to restore it related to the work with a great sense of responsibility. They had to carry out a great many unforeseen control checks and had to conduct in-depth studies of the assemblies and systems, the results of which they reflected in the technical documentation in a timely fashion. The personnel dealt with the assigned mission with honor, and for this they earned a high evaluation from command. I would especially like to mention Guards Capt Tech Serv V. Sheydakov, Guards Sr Lt Tech Serv M. Zalepukin and Guards Warrant Officer G. Zen'ko. Other officers and warrant officers as well labored selflessly.

The group led by master Guards Capt Tech Serv V. Abramov is showing solid results in socialist competition. The specialists know their business excellently and devote a great deal of attention to improving technical efficiency. Thanks to the help of the leading workers and, primarily, communist V. Abramov, for example, Lt Tech Serv V. Tolstoguzov quickly entered their ranks. He is now one of the most experienced technicians, a right-wing man of socialist competition.

The efficient rhythm of the work in the technical maintenance unit, the atmosphere of high exactingness and solid normal relationships contribute to the successful

execution of the basic mission: insuring the guaranteed reliability of aviation equipment. The main thing is for us to notice troubles in time and eliminate them.

On one occasion, the guardsmen carried out preventive maintenance work on an optical gunsight. It was not a simple matter, and it required not only in-depth knowledge but also a high level of technical skill. We can tell you that special skills are required in order to use the slightest signs to detect a deflection in the reference axis of the aiming coordinates. On this occasion, Guards Sr Lt A. Zen'kov distinguished himself. Working with the precision of a jeweler, he managed in a short period of time to adjust the apparatus. There are many such examples testifying to the professional skill of our officers and warrant officers and to their exacting attitude toward the servicing of complex aviation equipment.

Under modern conditions, as experience shows, the analytical research activity of the management and the chiefs of technical maintenance unit groups has acquired great significance. We have all the resources we need for this, including laboratories, training classrooms and shops equipped with various kinds of apparatus. Thoughtfully studying the methodology for training and for the conduction of routine maintenance operations, we strive to find the most effective new methods for training and educating our personnel and constantly improve production methods that guarantee the high quality of the operations performed.

It is necessary to note that the achievements of the leaders of the competition are constantly disseminated within the unit. Toward this end we have put together a stand on which are reflected the successes of the personnel in the execution of the socialist obligations they have assumed, and we also put out special photo-bulletins about the leading workers. One of these photo-bulletins was dedicated to specialist 1st class Guards Warrant Officer G. Zen'ko. As results were tallied for the regular training month, he was recognized as best in competition. Good things are also being said about the outstanding student in the training program, Guards Warrant Officer V. Velichko, who was awarded the highest rating--master.

Nevertheless, there are still oversights in disseminating the experience of the leaders of competition. Frequently in the graphic-agitation materials--photo newspapers, lists of achievers--their achievements are glossed over or presented in general terms. At times, the best qualities of those right-wing military laborers who add to the heroic traditions of those who fought on the front lines are disclosed in a sketchy manner. Moreover, in their meetings with the young soldiers, the outstanding workers and rated specialists frequently conduct vague, general discussions without deep analysis, thought or conclusions.

On the threshold of the aviators' summer combat training, we have comprehensively analyzed our activity and investigated our mistakes self-critically. Henceforth, we will concentrate our attention on insuring a reliable guarantee of the high quality of routine maintenance on missile-carrying aircraft.

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DANGER OF TORNADOES TO FLIGHT OPERATIONS STRESSED

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[Article by Engr-Lt Col Ye. Artem'yev: "The Sun Had Been Shining Brightly Since Morning"]

[Text] It was a warm July day, one of those when the tropical wind from the Mediterranean reaches the Ukraine. The sun had been shining brightly since morning. Afterwards, thin cirrus clouds began to drift across the sky. It seemed that nothing could disturb the tranquil state of the atmosphere. The meteorological specialists knew, however, that the air mass was unstably stratified and it would not be two or three hours before storm clouds would begin forming.

At noon, a cumulus cloud appeared over the airfield. It grew rapidly in height, taking on a dark-gray color. The people at the airfield expected thunder to peal and a downpour to break out at any moment. There was no rain or thunder, however. The cloud got darker, and a haze formed beneath it. From this haze a funnel suddenly began twisting with its cone at the bottom. Another funnel that had formed over the surface of the land stretched cone-upwards to meet it. The cones merged, and a tornado was born!

This occurred at 1440 hours. After 2 or 3 minutes, the tornado moved to the aircraft parking area, passed over it in 20 to 30 seconds, then moved to the building of the technical maintenance unit and the hangers and went away. All of this had taken less than 5 minutes, but its consequences proved to be serious. Roofs were torn off, equipment was damaged and light structures were destroyed.

What kind of phenomenon is this, and from where does it get its destructive force? How can one predict its appearance?

A tornado is an atmospheric vortex of small diameter (from several meters over the sea to 500 m over land) with a vertical axis and an extremely high rate of rotation of the wind (up to 200-250 m/s and greater). It consists of two parts: the cloud which spawns the vortex, and the vortical funnel.

The clouds in which tornadoes arise are typical cumulonimbus in form and structure. Numerous observers give the most general descriptions: a huge thunder storm; a thunder cloud, dark on the underside; a heavy, dark cloud hanging over the earth, and

so forth. A dark, greenish, grayish brown color on the lower portion of the cloud is rather frequently mentioned. Apparently, these colors are associated with the large amount of dust and water in the cloud.

The average dimensions of the cumulonimbus cloud which spawns the tornado are, as a rule, not very great: 5-10 km (occasionally 15 km) in cross-section; height from 10 to 15 km. Sometimes, in the case of large tornadoes, the width of the cloud can reach 40-50 km. The cloud's speed of motion is 40-70 km/h, while its duration of existence is from 1 to 2 hours. In this time it covers 50-100 km. In some cases, the clouds can exist for longer periods of time and can move over distances of 300 to 400 km.

The vortical funnel is the result of complex dynamic processes taking place within a convective cloud. It is a spiral vortex to which are introduced. Due to this admixture, the funnel becomes easily seen. The closer the funnel is to the ground, the narrower it becomes. An air stream with a great speed of rotation is responsible for the tornado's destructive action. Another destructive factor is the rapid drop in air pressure within the vortex from the periphery to the center. The rarification of the air is so great that excess pressure achieving destructive force is created within the building due to the rapid drop in air pressure on the outside.

The energy of tornadoes is staggering. They destroy bridges, crush steel structures, break the towers of high-voltage power lines, knock heavily laden railcars off the tracks and destroy and carry off brick buildings. A tornado can lift objects weighing 50-100 t off the ground. The terrible destructive force can be seen vividly in the forests: in the places where a tornado has passed through, long narrow strips remain within which all the trees have been broken, twisted into bunches or stripped of their bark.

Up to 2,000 tornadoes are recorded annually on the globe. They are noted most frequently in America and Australia. According to statistical data, 700 tornadoes on the average are observed annually in the United States, of which 200 cause damage. For 20 to 25 of this number, the damage is considerable.

One of the most terrible tornadoes of the last half-century was the "three-state" tornado recorded on 18 March 1925. It began in Missouri, passed through Illinois and ended in Indiana. Its destructive force was unbelievable. The tornado left nothing intact over its entire 350-km length. Homes, streets and gardens were turned into solid heaps and piles of debris. The overall number of victims totaled 695, with 2,027 seriously injured.

Tornadoes are rather rare in our country. Sometimes during the summer only few are recorded over the European sector of the USSR, and occasionally the summer goes by without any. The most northern tornado was seen near the Solovetskiye Islands, the southernmost in Central Asia, near the city of Karshi. A rather large number of tornadoes appear in the southern portion of the territory of the Far East when the summer southeast monsoon brings a mass of warm, humid air from the Pacific.

The statistical meteorological forecasting studies which have been conducted make it possible to draw the conclusion that the high temperature and humidity of the air and the presence in the air mass of a large reserve of instability (as for the

formation and development of cumulonimbus and thunder clouds) are necessary for the spawning of a tornado. Tropical sea air has these characteristics. Tornadoes in the United States appear in the humid tropical air of the Gulf of Mexico and over the European sector of the USSR in the warm air mass that arrives from the regions of the Mediterranean Sea and the Central Atlantic.

Despite the fact that tornadoes and thunderstorms develop under similar conditions, the mechanism of their formation differs. For this reason, the prediction of tornadoes cannot employ the means and methods used to predict thunderstorms. In order to forecast the formation of tornadoes, one can adopt recommendations derived by an empirical method.

In the first place, tornadoes usually appear in the warm sectors of cyclones, most frequently ahead of a cold front, while in some cases they appear in the zone of a warm front or in front of it. They can form in a cold front over the Black Sea or directly behind it. The proximity of the fronts stimulates the process of tornado-formation. As a rule, tornadoes are not noted over land behind a cold front.

In the second place, tornadoes form in air masses of tropical origin if the value of the absolute humidity at ground level is not less than 12 g/kg; if there is a considerable water content at altitude (from 10 to 12 g/kg in the near-earth layer and from 5 to 7 g/kg at altitudes of 3 to 5 km); if the vertical temperature gradient is higher than the saturated adiabatic lapse rate; and if there is a weak breeze or calm in the near-earth layer.

The most catastrophic tornadoes are observed at the peaks of wave disturbances.

In case a tornadoes appear in the region of the airfield, the flight control officer uses the radar equipment, the weather reports of the pilots in the air and the recommendations of the forecaster on duty and is obliged to inform the crews of the location of the tornado cloud and its direction of travel. He must also provide instructions regarding the changes in flight altitudes and routes so that the crews can detour around the danger zone.

Flying personnel must remember that tornadoes belong to the group of most menacing meteorological phenomena. Their zones of action are not limited to the cloud. Hurricane-force winds, strong updrafts and downdrafts, turbulence and thunderstorm phenomena can be observed at distances of 15 to 20 km from the cloud. Taking this into consideration, the crews must avoid the cloud at a considerable distance. In case of unintentional entry into a tornado cloud, one must take measures to exit the cloud immediately without applying abrupt movements of the stick or the large wing surfaces.

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ENGINEERING SCHOOLS SEEK TO CULTIVATE INITIATIVE AND INDEPENDENCE

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[Article by Engr-Maj Gen P. Andriyenko and Engr-Maj D. Golinskiy, docent and candidate of technical sciences: "Cultivating Independence and Initiative"]

[Text] The commander's independence is primarily his ability to carry out the mission he has received according to his own plan without outside assistance. Initiative is an aspect of a man's character reflected in actions that are creative with respect to form and content and in the skill to find and apply the most suitable methods of carrying out one's official duties in the situation which has taken shape. The significance of these qualities has grown considerably at the present time.

The expansion of the influence that aviation engineers have upon the units' combat readiness is reflected not only in their responsibility for the special training of all the personnel and the proper organization of equipment operation. It is also dictated by the direct participation of the officers in tactical calculations, the development of instructions for the crews with respect to the efficient utilization of airplanes (and helicopters) and in the selection of ammunition for the destruction of a specifically assigned target. Based on these demands made upon the engineers who service modern sighting and navigation systems, an entire training process is being designed, in particular, within that academic department which prepares specialists in aircraft weaponry.

A great deal of work is under way here, directed at increasing the specialists' ratings and at improving the teaching skills of the instructor personnel. At the present time, the relative significance of tasks of an ideological and political-educational nature has indeed increased markedly. The role of the instructor's personal example as a Soviet citizen, an officer, a rated specialist and an educated and cultured man with high ideological and moral qualities has also grown. An instructor who possesses these qualities, who aggressively conducts scientific research on one of the urgent problems of military science and who participates in the preparation of training aids has a more effective influence on the students and draws them into military-scientific work. In this way, he also cultivates independence and initiative. In other words, he is more and more being changed from a simple transmitter of instructional information into an organizer of the students' creative activity.

The materials for conducting lecture, practical and laboratory classes and special tactical exercises in particular are developed in the academic department based on experience gained within the units in the operation of sighting and navigation systems as well as on the experience acquired in the combat application of aviation for the destruction of various land-based and airborne targets. Problem situations are created in the classroom which force the young engineers to work with the full intensity of their efforts and to display initiative and independent action in the solving of various tasks and hypothetical problems. The training process is thus organized by the following communists: docent Engr-Col M. Beketov, participant in the Great Patriotic War and candidate of technical sciences; and candidates of technical sciences Engr-Col L. Shmuylov and Engr-Lt Col N. Pomortsev. In their classes, these officers create an instructive atmosphere that is as close as possible to the combat environment and strive to compel the student to adopt independent solutions within a limited time period and, as a rule, without sufficient information. This, without a doubt, demands creative initiative from the students and requires that they assume a certain amount of risk.

One one occasion during a planned practical class, Engr-Lt Col Pomortsev created an individual problem situation for each group of five students. The essence of one such problem can be reduced to the following: they had 20 minutes to prepare an aircraft for a combat sortie. During work on the sighting system for the guns, continuous oscillations of the "range" needle were observed. They had to make a decision about releasing the aircraft for the sortie.

Future officer-engineers S. Dyukov, Ye. Yefimov, I. Ivanov, I. Zakordonskiy and S. Aleynikov made the proper decision: the aircraft was to be released for the sortie after the malfunction was eliminated. The group, however, did not manage to accomplish this within the allotted time. In summing up the results, Engr-Lt Col Pomortsev carefully examined the actions of his students and explained how the job should have been done in order to finish everything by the specified time. The instructor did the same thing in the other groups as well, stressing that each student proved himself in an environment that was close to actual combat. Not everyone got high marks on this occasion, but, on the other hand, each man felt that from class to class he was being trusted to do practical engineering problems of increasing complexity independently.

The proper organization of command-method training, on-site special tactical exercises and range practice is of great significance in developing initiative and independence in the future aviation engineers. The range practice is planned in such a way that the students always deal with actual aviation ammunition and conduct all types of work using it, including operations involving its detonation. Such training contributes to increasing the psychological preparation of the students. This training, being organized in conjunction with the moral-political and combat training, should insure the formation in tomorrow's engineers of those qualities which they need so very much--courage, bravery, persistence, resourcefulness and steadiness of reaction in unforeseen situations. In this plan, the day-to-day work of the instructors in making the classes as much like actual combat as possible opens up to the students the most favorable possibilities for improving their professional training.

We recall Engr-Lt S. Redin and Engr-Lt A. Pozhidayev from the first graduating class. From their very first year they not only mastered the training material

in their lessons, they deepened and augmented it in the process of their independent work: they systematically developed lectures on their programmed subjects, studied the recommendations of the basic and additional literature and carried out their various tasks in accordance with the study plan. In addition, they engaged in research work in groups of the military-scientific society (VNO), and both immediately became active members.

Their creative independence has grown. From the simple summarizing and analysis of the materials on selected work subjects in the VNO group, Redin and Pozhidayev have gradually switched to the development and study of complex issues. During their second year, for example, each of them presented a report at an all-academy scientific and technical conference of students of the military-scientific society. During the third year, Pozhidayev's and Redin's first articles appeared in the "Collected Academy Works," and soon afterwards their work was published in scientific journals. The future engineers took part in departmental, academy and all-union competitions for the best scientific work of the students and were awarded Certificates of Honor.

The themes on which the students in the VNO group had been working for several years were reflected in their theses which the State Examination Commission evaluated as "outstanding." The commission's certificate read: "We recommend that the corresponding design organizations familiarize themselves with the theses of students Redin, S. A. and Pozhidayev, A. Yu."

While carrying out their service, the young engineers continue to conduct research in their previously chosen directions. Engr-Lt S. Redin passed his examinations in foreign language and Marxist-Leninist philosophy at the minimum level for a candidate and is preparing to coauthor his dissertation. Engr-Lt A. Pozhidayev entered the service in a short period of time, mastered his duties fully and skilfully applies his acquired knowledge in practice. He is an aggressive efficiency expert in the unit and displays a great deal of creativity in establishing the material-technical training base. Original working simulators and trainers have been built in the regiment on his initiative and with his personal participation. The squadron in which Pozhidayev serves awarded him the title of "outstanding," and the communists in the unit chose him to be the deputy secretary of the party organization. The young officer has many concerns and worries, yet he still finds the time to improve his knowledge and engages in research into the most complex characteristics of sighting and navigation systems.

In the department that prepares specialists in aviation weaponry, much is being done to improve the independent work of the students. The students' cognitive activity and their initiative are not the same thing. The skill to plan and to organize one's independent training has, without a doubt, an effect upon the quality of one's professional training. For this reason, a planned system for getting to know the students' individual qualities is being introduced within the department.

The primary role in this is assigned to the head of the department whose instructors are appointed to a specific class section immediately after the students wishing to enter the academy are enrolled. For example, the department headed by Engr-Lt Col Yu. Cherednichenko works in close connection with the command of the course of study and with the party and Komsomol organizations. The instructors examine the microclimate in the collective and determine the skill of their proteges to utilize the

literature independently while simultaneously listening to and summarizing material as well as planning independent work. On the basis of this analysis, they work together with the command of the department and the course of study as well as with the party organization to select the sergeant staff and form the party active.

About five years ago, they appointed outstanding trainee Sr Sgt S. Khripunov to be the commander of the training group, A. Karasev to be the party group organizer and Yu. Alabovskiy to be the secretary of the Komsomol organization. These were students who were making excellent progress. All three had prestige and enjoyed the respect of their classmates. It was this that created the microclimate in the unit which had a positive effect upon the development of the independence and the initiative of the future engineers.

In such well thought-out groups, it is easier for the instructor to get the attention which mobilizes to a maximum degree the students' memory and thinking for better understanding of the material. Of course, much depends upon the knowledge and the teaching skills of the instructor. We can tell you that the methods used in lessons taught by Engr-Col M. Beketov, docent and candidate of technical sciences, are instructive. Tactfully and without pressure, he draws this student and that into a common undertaking. The officer presents a training problem, gives review questions and analyzes the opinions of several people regarding these questions. As a result, the group works with intensity and emotion.

We have to note that the unit commanders' comments about the school's former pupils force us to ponder over the results of our own work. Analyzing their results in depth, the instructors thoroughly evaluate their own activities, draw conclusions and find ways and methods for further improving the quality of the training received by Air Force engineering personnel. We would like for the commanders, political workers and officers from headquarters and engineering aviation services of air regiments where the graduates of our academy are serving to constantly prepare objective comments about our former students.

All negative facts in the training and education of our young engineers are analyzed in depth by command, the political department and the supervisory staff of the departments, faculties and courses and are discussed in the party and Komsomol organizations. Additionally, all necessary measures are taken for further increasing the degree to which we cultivate high moral, political and command qualities among the students. Particularly successful is the work being conducted in the fifth year. Lt Col V. Demikhov nad Capt V. Sokolov have done much in order to accomplish this. Today, both of these officers have been promoted, but, as before, the harmonious military collective formed by them continues among the ranks of the right-wingers. In this case, a great service has also been performed by the patron department headed by Engr-Lt Col Yu. Cherednichenko.

Initiative and independence become the style for the future engineers due to the application of interdependent pedagogical methods and the inseparable unity of training and education. The utilization of this entire complex of means, the solid prescribed order and the high moral-political training and psychological stability of the personnel are most important conditions for the successful execution of tasks involving improving the quality of training received by officer personnel for our Air Force.

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METHODS FOR IMPROVING FLIGHT TRAINING DEVELOPED

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[Article by Col Yu. Belyayev: "In Service to the Motherland"]

[Text] The engineering command post where Lt Col A. Kamenshchikov had stopped in rose over the airfield. From here one could see the fighters which the aviation specialists were preparing for the next sorties and the expanse of the airfield's territory, seemingly "lined out" by the concrete ribbon of the runway that ran from end to end. The emerald cover of grass which had yet to dry out shone a bright green. A breeze warmed by the spring sun rushed into the engineering command post through the open windows. Anatoliy Nikolayevich's mood was heightened: a future pilot with whom he had taken off into the flight zone had demonstrated good flying technique. The business that had brought the lieutenant colonel to the engineers was quickly resolved and the flight shift continued.

There was a "window" in the flight planning table of officer Kamenshchikov, the deputy commander of the student air regiment for flight training. For a minute or two it was possible to simply and calmly watch over the seething life of the academy airfield. Maj V. Shkarin's squadron was flying. Vladimir Aleksandrovich is a young officer, and he needs the support of an experienced methodologist. Moreover, until recently Anatoliy Nikolayevich Kamenshchikov had headed up this unit for five years and he knows the collective well.

Aircraft with variable-geometry wings were taking off and landing. A fighter piloted by Lenin grant recipient Jr Sgt G. Kochetov rushed off on afterburner into the blue heights. Soon afterwards, an aircraft flown by communist Sgt V. Lavrenchuk, the squadron's senior cadet, touched down on the runway. Just a few seconds earlier, cadet Z. Abdurakhman, recipient of a grant from the Lenin Komsomol, concluded his mission with a beautiful landing. All three were graduates who flew boldly and confidently.

The next descending aircraft attracted Kamenshchikov's glance. Its glide path was not very smooth--at first the aircraft was a little high, then, as if suddenly negotiating several steep steps in a staircase, it ended up below the calculated path. The landing that resulted was not entirely successful. At the moment of touchdown, the cadet pulled back on the stick and the aircraft bounced on the runway. The future pilot corrected the error then and there, however.

The flight control officer recorded it in the log. Lt Col Kamenshchikov also entered the mistake in his notebook. There he already had several entries--both positive and negative. All of them were useful at the critique of the flight shift and in the officer's further methodological work with those who would teach and those who would be taught.

The person who is properly dedicated to the work he has chosen improves himself and enriches himself and others with knowledge and experience. Contained in this immutable law is perhaps one of the basic motivating forces in the development of the individual and the collective.

As a schoolboy more than 20 years ago, Anatoliy Kamenshchikov firmly resolved to become a combat pilot. He was siezed by this dream. After secondary school, he started work. He worked in two shifts in order to find time for lessons in the aeroclub. It tired him out, of course, but he did not back off from his goal.

"I will always remember," said Lt Col Kamenshchikov, "my first instructor, Anatoliy Pavlovich Zhukov. It was he who cultivated in us love for the difficult and romantic profession of the airman."

Deep respect could be heard in Anatoliy Nikolayevich's voice as he recalled those men with whom he had worked here side by side at the academy for almost two decades. At first he had been a cadet, then an officer. He then became an instructor pilot, a flight commander, the squadron deputy commander and then its commander.

"I went through instructors' school under Leonid Sergeyevich Yevtushenko, who now works on the integrated trainer," continued the officer. "He taught us to educate the cadets properly and to consider their practical qualities and their psychological stability. Squadron commander Lt Col Aleksandr Viktorovich Deyev remains an example for me--a skilful and energetic organizaer of the educational and training process. I have borrowed much from him, especially from his experience as flight control officer."

Practically every person to whom combat instructor pilot 1st class Lt Col Kamenshchikov had been subordinate gave to him a portion of his spiritual warmth, generously shared his knowledge and equipped him with skills. Anatoliy Nikolayevich strives to do the same thing himself. Of course, not everyting turns out the way you want it to all the time. The officer painfully told us Kamenshchikov about cadet A. Baratov who had to be expelled from the academy because of his lack of discipline.

"Under such circumstances," resumed Anatoliy Nikolayevich, "it is customary to mention the expenses. They are, as they say, unavoidable in such a case. It is possible that this is the case here, too, but in the affair with Baratov, I have to honestly admit that we, the instructors, incurred the costs. We did not look into things deeply enough; we did not understand this man's character thoroughly."

Nevertheless, Lt Col Kamenshchikov had more successes than failures. Had he not, they would not have assigned him, the squadron commander, a critical matter: teaching the cadets to fly a VGW fighter.

This task was not one of the simple ones. A few years ago, even the pilots from operational units could only dream of flying such an aircraft, and now it was being entrusted to youngsters taking their first steps into the big sky.

"Where do we begin, commissar?" asked Kamenshchikov of Maj A. Panasenko, the deputy commander for political affairs, a man he had been with since their school days at the aeroclub.

"First of all," answered Anatoliy Fedorovich, "you have to master this aircraft well yourself."

They conducted service conferences and party and Komsomol meetings. Having completed their conversion training, the instructor pilots and the engineering-technical personnel prepared teaching plans and visual aids. The positive aspects were noted and the slightest oversights were analyzed in detail. The unit's entire collective labored intensely, and of these, Lt Col A. Kamenshchikov, Maj A. Panasenko, flight commander Capt N. Nurakhmetov and deputy commander of the engineer aviation service Maj Tech Serv M. Susloparov worked harder than the rest.

The day for practical work with the cadets had arrived. As it turned out, however, although they had gone through very careful training, there were a few of the students who were intimidated by the new fighter. Timidity, as we all know, is a poor ally. The officer instructors of the unit met and began to think of a way to set things straight.

"We have to increase the number of training sessions in the cockpit of the aircraft and flights in the simulator," suggested Capt N. Nurakhmetov.

"We have to create a moral and psychological training room right in the unit," added Maj A. Panasenko.

The chief of squadron headquarters, Maj S. Bezus, shared a thought with them. "The instructor pilots and the flight commanders must discuss more often with each cadet the high reliability and remarkable flight characteristics of the aircraft."

The command of the academy and the regiment approved the suggestions expressed by the officers. It appeared that they could count on success. Then, unexpectedly, cadet U. Khanafeyev bounced his fighter upon landing and damaged it. This gross error dispirited Ural Khanafeyev, and the other cadets who had mastered the program poorly were crestfallen.

Again they had to search and work stubbornly.

"Sharpen the accuracy and speed of the cadets' reactions to changes in the situation," said Kamenshchikov in admonishing the flight-instruction personnel. "Never tire of repeating that precise maintenance of the glide path and the approach speed as well as the passover of the outer and middle marker locators at the prescribed altitudes are a reliable way of guaranteeing that there will be no mistakes."

Training on the ground, demonstration in the air and analysis of the flight-recorder data in order to draw subsequent conclusions. Explanation of the obscure, conviction when speaking of the fact that, although the aircraft is a complex machine, it will surely submit to a man who is steadfast and purposeful. Comments on the experience of the best cadets--Konstantin Nuzhdin, Nikolay Churkin, Sergey Dzyuba, Evrin Babadzhyanov. It is impossible to enumerate everything that has been done

within the unit so that the young aviators earn their wings quickly. The missions have become all the more complex. Moreover, the skill of the future pilots has grown as well.

Nuzhdin, Churkin, Dzyuba, Babadzhanov and Khanfeyev--representatives of our fatherland's various nationalities--flew from their home nest as lieutenants. They flew off in order to reliably defend its peaceful skies. Communist squadron commander officer A. Kamenshchikov was awarded the medal, "For Service to the Motherland in the USSR Armed Forces, Third Degree."

With its many voices, the toiling airfield sings a working song as it takes the VGV fighters to its mighty busom and accompanies them into the spring sky.

Leaving the engineering command post, Lt Col Kamenshchikov slowly walked around the parking area. He briefly gave advice to an instructor pilot, encouraged a cadet preparing for a solo sortie and exchanged words with a technician he knew. He has concerns both big and small. Some are long-range, some are immediate--they are, however, no less urgent. Everything is associated with the training and education of skilled pilots. With his appointment to a new post, his circle of concerns has expanded considerably.

One of the most important of these concerns is the improvement of methods for training the cadets. It is to this cause that Lt Col Kamenshchikov devotes the greater part of his energies. In the academy, experimental training using so-called reference points has been conducted for a long time. The results obtained have been reassuring, and it has been decided to introduce this training into practice.

During the past winter, Anatoliy Nikolayevich together with Lt Col Aleksey Ivanovich Plotnikov and other officer instructors devoted themselves to completing the teaching literature. They worked in parallel to prepare new plans for the flight lessons as well as the technical resources. This issues are being resolved even now.

"The main thing that we have to achieve in the near future," said Kamenshchikov, "is a sharp turn in the direction of the utilization of active forms of training. For this we need, as they say, to break psychology--our own, the flight instructors' and the cadets'. There are, in the meantime, some who prefer to operate traditionally, in the old way."

The cadets soon proceeded with more complicated types of flying. Anatoliy Nikolayevich also cannot lose sight of the training for such an important step in the lives of these young people--otherwise, mistakes are inevitable.

Many things remain to be done. Communist Lt Col Kamenshchikov does not have to borrow strength and energy. He sees his main goal in life in exemplary service to the motherland.

It was time for the sortie. Anatoliy Nikolayevich took off in his aircraft. He had to carry out his next mission. This officer would give it all the ardor of his spirit, for he knows that only he who constantly moves ahead can teach others skilfully.

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CONCERNS OF AVIATION TECHNICAL UNIT COMMANDER DETAILED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
pp 36-37

[Article by Col V. Pavlov: "The Crossroads of Fate"]

[Text] The bright rays of the sun climbing over the horizon sparkled on the delicate young foilage and the silvery fuselages of the bombers. Less and less time remained until the start of flying. Lt Col V. Kraskovskiy, who had arrived at the unit very early, called the commander of the airfield maintenance company, Capt A. Polyakov, from his office. He was disturbed by the condition of the runway.

"We have everything ready for the flights," answered Polyakov.

Putting the phone back on the cradle, Vyacheslav Nikolayevich continued our conversation about the best people in the collective.

"This is the most labor-intensive segment of the work done by the troops in the airfield maintenance company," said the unit commander. Frequently, the drivers of the spray trucks and the bulldozers do not leave the movement area for hours at a time. Occasionally, extreme situations arise.

Vyacheslav Nikolayevich told us of one such instance. A cyclone that had broken in from the northwest had brought down a heavy load of snow on the airfield and its buildings. The snow covered the movement area, the approaches to the aircraft parking areas and other airfield facilities.

"It was difficult to withstand the blustering bad weather," recalled the officer. At that time, powerful vehicles and the most experienced drivers had been sent to the airfield. The rotors removed the snow from the runway, and the bulldozers and tractors cleared the road to the areas where the aircraft were located.

The snowstorm raged for almost 48 hours. No matter how difficult it was, the company personnel endured the onslaught of the elements. After a comparatively short period of time, the airfield was again ready to launch the missile-carriers.

Lt Col Kraskovskiy named the men who had distinguished themselves. First and foremost among these he noted communist Capt A. Polyakov, Lt I. Vinogradov and the secretary of the company's party organization, Sr Warrant Officer V. Karpenko. They

displayed organization, dispatch and precise mission execution. Under their leadership, all the personnel worked in coordination, and the elements were defeated.

"This in many ways was aided by our strong friendship, our mutual assistance and the healthy moral atmosphere within the collective," Kraskovskiy stressed.

Continuing his thought, Vyacheslav Nikolayevich cited a few more examples of the exceptional self-control and high professional training of the soldiers. In difficult moments, each strove to assist his fellow serviceman and to support him.

The commander proudly spoke of the people, their selfless work and their achievements under the motto, "To Increase Vigilance and Reliably Insure the Security of the Motherland!" His eyes sparkled with joy and a satisfied smile appeared on his face. From everything it was apparent that Vyacheslav Nikolayevich experienced satisfaction in the honest and conscientious service of his subordinates. He highly rated those people who served conscientiously and with full intensity of effort.

Lt Col Krasovskiy has a special list of so-called "middling" students. He tries to meet with them more often, maintains a constant interest in the course of their training and service and advises them on how to become leaders. From them will later spring up first-class specialists, outstanding trainees and the initiators of many remarkable things.

Such is this officer's style of work. He has an individual approach for each of his subordinates with the necessary consideration of their characteristic features, inclinations and abilities. Communist Krasovskiy is concerned about the people and strives to be exacting and fair. His difficult life has taught him this.

In the terrible year of 1941, he was seven years old. His tenacious young boy's memory retained the crowds of people in the area near the train station and the tears of the women and the cries of the children who tried to squeeze into the crammed cars. He remembers the barbarous attacks of the Fascist dive bombers whose bombs killed the people. How much his Belorussian homeland suffered in the black years of Nazi occupation!

When the Soviet Army drove off the Fascists, Krasovskiy's countrymen began rebuilding the economy destroyed by the war. Vyacheslav helped the adults. He frequently had to work from dawn to dusk, and by the end of the day he was falling off his feet from exhaustion. With the first rays of the sun, however, he began working again and went off into the field, where in his difficult work he tried to equal his seniors and to not lag behind them in any way. In these difficult days he acquired experience and worldly wisdom, and his character was tempered. He heeded particularly the advice of the front-line soldiers of yesterday and were his mentors. He was proud of his close association with them and valued their confidence. Today Vyacheslav Nikolayevich refers to his first teachers with great respect and is sincerely grateful to them for their selfless support and assistance. These remarkable people who had gone down the terrible roads of war had given the youth fine labor conditioning. Was it not their example which taught Kraskovskiy not to shirk difficulties and to select the correct paths in life?

After finishing the military aviation technical academy, Vyacheslav Nikolayevich for several years prepared bombers and then fighters for take-offs into the sky.

The officer carried out his service obligation with zeal. Frequently, after finishing technical operations on his own aircraft, he would hurry off to help his neighbor on the parking area. Many times the first-class specialist heard words of gratitude from those who had only just started work as technicians and from those who for the first time were putting aircraft into the air. Vyacheslav Nikolayevich put more than one of these men onto his feet. To this day, many recall him with gratitude.

One day, the regimental deputy commander for political affairs invited Kraskovskiy to his office. He expressed an interest in how things were going, then suggested that Kraskovskiy switch over to Komsomol work. The officer regretted parting with the aircraft, but he consented.

Many times over, the Komsomol members in the air regiment elected communist V. Kraskovskiy to be their leader. With honor he proved to be worthy of their high trust. He later worked as the company deputy commander for political affairs. After completing a higher educational institution, he received his appointment to his difficult and critical position. They respect him in the unit and value his sense of principle, his hard work and his skill to see what is the main thing in a man.

Over the course of several days we had occasion to testify fully to the activities of the officer instructor which are filled with concern. Whether the matter concerned material and technical flight support, the improvement of the aviators' living conditions, the services and amenities at the military cantonment or the organization of training and education, Lt Col Kraskovskiy delved deeply and thoroughly into everything and resolved the questions that arose efficiently and with knowledge of the matter. Those who turned to the commander received a concrete and well-reasoned answer or advice on what to do and how to do it with a minimum of time and manpower expended. Kraskovskiy issued his orders with calm and precision.

The business entrusted to Vyacheslav Nikolayevich is complex. All he has to do is overlook something, and he can wait for the complaints to start. For this reason, he strives to avoid omissions and oversights in even the smallest thing, to foresee everything, to plan efficiently and to carry things out in a timely fashion. Foresight and planning in the activity of an officer play a tremendous role. Initiative and zeal are no less important for a commander, especially in his dealings with aviation rear service which functions around the clock. The combat readiness and training of the airmen as well as their living conditions and attitude depend to a great degree upon the rear specialists.

Perceptible changes have taken place in the military cantonment since Vyacheslav Nikolayevich has headed up the aviation maintenance unit. A fence has appeared around the cantonment area, the hotel and the dormitory for the young officers have been remodeled and parking areas for official and private vehicles have been set up.

In the past year, heated rooms have been built for vehicle transport services. A two-story building for automotive services has been erected in the motor pool area. How much resourcefulness and zeal the soldiers displayed in equipping the technical classroom! Here they assembled units and assemblies from modern vehicles and put together diagrams, drawings and stands. New structures appeared at the airfield.

Among them was a building for the duty officer of airfield technical support and the engineer aviation service control post. Construction of new premises for the storage of materiel is in full swing.

"This year," said Vyacheslav Nikolayevich in sharing his thoughts with us, "we have decided to build a vehicle-washing facility in the motor pool which will recycle the water."

Before they begin building anything, Lt Col Kraskovskiy must weigh and calculate everything. How much of our resources will be required? How can we insure the rhythm of the work on the installation going up? Where will we obtain the necessary building materials? Without fail, the commander confers with his assistants and listens to their opinions. The people subordinate to him are competent, full of initiative and have a high degree of professional training. Among them are Maj F. Burtsev, Yu. Shesternev, Yu. Korniyenko and V. Biryukov. In the competitive inspection, the motor pool took first place. Communist Biryukov and company commanders Capt V. Svetilichniy, Capt L. Snitich and their subordinates performed a great service in achieving this.

Particular success has also been achieved in the development of a mess-facility farm. The hothouses here operate all year long. In the wintertime, there are onions, dill and parsley in the flight and maintenance unit dining facilities, and cucumbers and tomatoes in the summer. This is a fine addition to the aviators' diet. Last year, a good deal of meat was turned over to the state and several tons were used to feed the personnel. In a word, the troops of this leading unit make their own appreciable contribution to carrying out the Food Program worked out at the May (1982) Plenum of the CPSU Central Committee.

Another day of intensive flight training for the airmen was coming to an end. The crews of the long-range bombers returned to home base from their flight routes. The mighty roar of the engines of these formidable combat aircraft died out. Lt Col Kraskovskiy's working day continued, however. Having given his orders to the commander of the airfield maintenance company regarding the preparation of the runway for the next flight shift, Vyacheslav Nikolayevich left for headquarters. New, pressing matters and meetings with his subordinates awaited him there.

"An article about discipline was recently published in one of the central newspapers," said communist Krasovskiy. "I want all the officers in the unit to become acquainted with it. Let them think it over and tell me their opinions."

He feels the joy of military labor and sees his calling in the constant concern for his people and the superior flight training of the guards airmen.

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STUDENTS TRAINED IN USE OF COMMUNICATIONS EQUIPMENT

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[Article by Col V. Obukhov: "Improving Skills"]

[Text] The military cantonment was cloaked in the light morning haze. Bustling about just a few minutes before, it had now grown quiet. The parade field and the asphalt roads were deserted. The soldiers had taken their places in the classrooms and the instrument rooms. According to the daily routine, the next training session had begun.

Watching over the work of a group of officers, I unintentionally recalled an episode which I had talked about the evening before with the regimental commander. We had been talking about the participation of the signals troops in exercise "Shchit 82." At that time, the opposing forces had complicated the tactical situation at one stage through their unexpected actions. It was necessary to immediately restore the combat readiness of the radio crews who had suffered the strike. This extreme situation did not catch the soldiers unaware. The officers and warrant officers of the unit that had fallen into the difficult situation displayed self-control and resourcefulness in successfully coping with their duties. They restored the situation comparatively quickly, and command and the aircraft crews were provided with reliable and stable communications. The high level of the professional and tactical skills of the unit commanders, the chiefs of the communications centers and the radio crews made it possible to achieve this.

It is no secret that the immediate transmission and reception of all instructions and orders in exercises and tactical classes is frequently entrusted to the duty signals officer by the individual commanders. They say that he bears personal responsibility for the quality and the efficiency of communications. Consequently, everything is up to him. This is where a reasonable question arises: how justified is such an approach to matters?

Life suggests that the personal conversations of the commanders over the radio or other means of communication frequently reduce to a great degree the number of various mistakes and clarifications and reduce the possibility of the interception of transmitted signals by the enemy. In the intense environment of modern warfare, orders transmitted by such a method can sometimes play a decisive role in achieving success. It is becoming clear how important and valuable today are the skills of

these same unit commanders and chiefs of communications centers in efficiently and confidently work on communications equipment. In order to do this, they have to train regularly in conducting radio communications and must work systematically in radio nets and links, not just when the situation necessitates.

Such training at a high methodological level is being conducted in the signals battalion commanded by Lt Col Ye. Tolpik. The training of the commanders forms the basis of this training. The officers and warrant officers study the organization of communications equipment and the rules for conducting radio transmissions. They likewise develop their skill in rapidly tuning the equipment to the working and reserve frequencies and in making contact with correspondents. They also study the procedures for exchanging radiograms and changing frequencies in the presence of interference and when there is active enemy jamming of radio communications.

The training instructors usually organize the sessions in the following manner. During the first 15-20 minutes, they examine the tactical specifications of the equipment and define precisely the radiowave propagation conditions. The next half-hour they devote to studying the procedures for inspecting, preparing and tuning this or that radio set.

They usually check communications from their own operating location, calling each subordinate on the radio in sequence. The rest, meanwhile, remain on standby in the net and listen to the conversations. After this, two or three officers or warrant officers demonstrate how to tune the equipment. Each error, its reasons and the possible consequences are examined collectively.

At such training sessions, they study the most complex rules of the radio-telegraph operating service with respect to providing reliable communications and conducting conversations over the radio. The trainees' primary attention is focused on the skill to utilize procedure tables, call signs and other data and on the strictest observance of radio discipline. In order to increase the effectiveness of the practical classes, for example, Capt V. Dem'yanenko and other experienced methodologists use a tape recorder on whose tape they record all mistakes made in conducting the traffic. Later, in playing back these tapes and commenting on them, the training instructor examines the shortcomings together with his subordinates.

In a combat situation, it is difficult to determine beforehand at which moment communications will prove to be especially necessary. Indeed, this frequently depends not only upon the professional skill and the decision of the commander, but also upon the actions of the opposing side. For this reason, the strictest consideration and analysis of the tactical situation forming and the skill of each officer and warrant officer to react to the changes taking place in this situation in a timely and competent manner acquires primary significance in modern dynamic combat. For example, the chief of a radio station, Warrant Officer A. Omelyushkin, communications master Warrant Officer P. Rozov and other experienced specialists not only constantly watch over all the changes in the tactical situation, but they try to foresee them when setting up and providing communications. This makes it possible to maneuver forces and resources intelligently and to successfully execute under any conditions the missions assigned by command. This is what they teach to their subordinates while patiently cultivating among them solid professional skills. The experienced mentors have trained many high-rated signals specialists. Their pupils efficiently perform their duty on the radio nets and links and provide communications of outstanding quality to the higher command.

In the units, the classes are most often conducted directly on the equipment, frequently under field conditions. Warrant Officer Rozov, for example, divides his platoon into several groups and radio links. In one of these groups under the guidance of the sergeants work the pupils making the best progress, while the second and third groups are made up of the less experienced students. The warrant officer himself leads a group of those who lag behind. The radio-telegraph operators train in deploying and tuning the equipment and develop norms for engineer equipment on position. In the process of their military training, they acquire the skills to operate under conditions in which the enemy employs weapons of mass destruction. In order that they do not develop the habit of interworking with the same correspondents, the composition of the pairs is changed from time to time during the work, and the tactical background of the training is made more complex by intensifying the interference.

Unfortunately, some commanders do not always take this into consideration. We can tell you that in order to reduce the effect of mutual interference and thus facilitate working conditions for their subordinates, they sometimes reduce the number of training radio links. Indeed, in a real battle you cannot use such methods to be rid of interference. It would not be unusual for various radio nets and links to be operating on the same frequencies. It will be difficult to provide radio communications under such conditions. This is why in the units the signals specialists are already being taught to work confidently under interference conditions.

At a certain stage in the training, Warrant Officer Rozov and the other methodologists not only check their subordinates' level of knowledge, they conduct technical quizzes specially devised according to the subjects taught which develop sharpness, reaction time, initiative and resourcefulness. Particular attention is directed to measures that make it possible to prevent disruption of communications.

At one time, they were unable in the units to select a convenient form of individual preparation for the training sessions. You see, the group method is good up to a certain point, after which the trainees are more and more separated by their level of progress, and orientation according to the average student becomes a brake for both the outstanding students and those who are slower. The innovators came to the rescue: they designed a combined unit that made it possible to reproduce the training texts at the channel output at various rates of speed. During the practical classes and training sessions now, each officer, warrant officer, sergeant and soldier in accordance with the level of his training can select a text that he can handle and then work with it without disturbing the others.

In their hours of independent training, the students practice receiving various texts at the rate they have achieved for an hour and a half to two hours without a break. The experienced instructors of the classes remember that the interests of constant combat readiness demand from the signals specialists the skill to work for prolonged periods of time in a complex and intensive environment. In order to do this, they must possess a high rating--an indicator of military maturity. The party and Komsomol organizations direct the efforts of the communists and Komsomol members toward the successful execution of this important task.

The campaign for high class ratings is carried out in many directions. The active party members together with the commanders of the units and the headquarters offi-

cers systematically check to see how the schedule of collective consultations for the soldiers preparing to raise their class rating is executed and to see what the level of their classes is. The party committee concerns itself with intensifying the communist's personal responsibility for the organization and conduction of technical conferences and interviews. The members of the party actively participate in propagandizing progressive experience. They determine beforehand which methods of work this or that best specialist will explain and demonstrate in the companies. On the recommendation of the party committee, competitions are regularly held for the reception and transmission of radiograms. These competitions make it possible to introduce timely corrections into the program of study of theoretical questions and the cultivation of reliable skills among the specialists.

A few years ago, some of the signals specialists in the unit were awarded the highest rating--that of master. The unit then had the basis for further increasing the number of such specialists. The party organization, after evaluating the possibilities, revealed a number of officers and warrant officers who needed to struggle a little harder to attain the rank of master. The activists spoke with each of them and ascertained what kind of help they required and suggested how they could better plan their preparation for the examinations. This was the result: the number of communications masters in the regiment has now increased by a factor of almost two and a half!

The majority of officers and warrant officers have accumulated experience in the training of highly rated specialists in a shortened period of time. Methodological advice renders appreciable assistance to the class instructors. The intensification of the training and educational process is at the basis of its development. Each lesson is constructed on the basis of the personnel's overall training. Success is being made in increasing the volume of training material mastered in the course of an hour, especially the practical material. In order to successfully carry out this task, extensive use is being made of the independent work of the specialists on individual lessons. Today all the officers and warrant officers skilfully carry out their duties and effectively teach their subordinates.

A break was announced according to the daily schedule. The soldiers, however, did not hurry to leave their training classes--they asked the instructors with interest about how best to prepare for the radio sport competition and how to organize additional drills in the reception and transmission of a mixed text and in the rapid drafting of radiograms. Answering their questions, the commanders shared their methodological secrets.

I left the military cantonment in a good mood--I had been cheered by the successes of the signals specialists from this leading collective. Dusk closed in. Electric lights shone in the windows of the service quarters. The windows in the signals specialists' classroom were lit up as well. The soldiers had to polish their skills. What they have already achieved, however, testifies to the fact that the signals specialists will learn their military work properly.

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METHODS OF COMBATING ALUMINUM-ALLOY CORROSION DESCRIBED

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[Article by Engr-Lt Col A. Novitskiy, candidate of technical sciences, and engineer T. Yampol'skaya: "How To Prevent Corrosion"]

[Text] Aluminum alloys are being successfully and extensively employed in aircraft construction. Several alloys of the D16- and V95-type from which load-bearing elements in aircraft structures are made, however, can be liable to a special kind of damage during operation--flake corrosion. What is it?

It is a type of surface oxidation which develops primarily in the direction of the maximum vector of deformation and is accompanied by the formation of cracks and the flaking-off of individual particles of metal. Such corrosion, as a rule, appears in places where there has been a break in the natural or artificial oxide protective (anodic) film. The formation of the process is accompanied by blistering or flaking of the surface of the aluminum alloy.

Among the reasons for the appearance and development of flake corrosion one must include the influence of alloying elements and additives and their uneven distribution. As a result of the hygroscopicity of the corrosion products of aluminum which form and their large volume, stresses arise perpendicular to the direction of the stratification which seem to move the layers of metal. The activity of the corrosive process is determined by the aggressiveness of the external environment in which the part or unit operates. This is particularly characteristic of the southern and northern regions of the country.

Flake corrosion is capable of damaging the load-bearing elements of an aircraft's structure--the wing spars and stabilizer, the outer and internal surfaces of the stringer framework, the center-section connecting joints, the load-bearing panels of the wing center-section, the brackets of the elevators, etc. Operational experience shows that after 5 to 7 years, depending upon the aircraft's storage and operating conditions, flake corrosion to a depth of 2 to 3 mm and more is sometimes discovered on these load-bearing elements. Liable to the effects of this type of corrosion are the mounting locations and points of contact of the bonding strips in the load-bearing elements, the recesses for self-tapping screws used to attach the frame of the fuel tank containers, the point of contact of hygroscopic fiberglass, asbestos or rubber gaskets and wells to accommodate connecting bolts and parts which are subjected to the effects of exhaust gases or are located in the battery compartments.

The external manifestation of the damage can be detected in the early stages by blistering and breaks in the lacquer coating. Corrosion that takes place over the course of an extended period of time (more than one year since the onset) has the appearance of a foliated mass with a gray-colored, friable powdery product. If the aluminum-alloy part has a protective plated layer, the oxidation appears in the form of blistering of the plating or breaks in it. Another characteristic sign is alternating layers of corrosion products and undamaged metal.

In inaccessible areas where it is difficult to visually determine the presence of flake corrosion, one may use an X-ray method of inspection.

What must be done in the case of the appearance of this corrosion? First of all, the damaged areas must be cleaned mechanically, using a scraper, emery paper or a cutter. If the damage has been detected in a load-bearing element under the heads of attachment bolts and nuts (which makes it more difficult to work the sections), it is recommended that the assembly be removed. The thoroughness with which the corrosion products have been removed is checked by a "paint" method. Before the protective coating is applied (not more than two hours after the corrosion products are removed), it is necessary to blow off the section with dry, compressed air and wipe it with a gasoline-soaked rag.

The personnel who service and operate aviation equipment must remember: it is always considerably easier to prevent corrosion than it is to remove it. One only has to carry out preventive measures on a regular basis. First and foremost, one must monitor the condition of the structural elements carefully, restore the lacquer coating in time, clean dirt from the surfaces of the parts, carefully cover the aircraft with the standard tarps and, in dry weather, air out the aircraft compartments in an effort to remove moisture and condensate which forms as a result of drops in temperature. And, of course, one must not violate techniques for the application of protective coatings.

One must remember that the use of badly worn wrenches and improperly sharpened screwdrivers leads to damage of the anticorrosion coverings and, as a result, to corrosion. The most effective methods of protecting the load surfaces will be nullified if the technician or mechanic deviates from the requirements of technological discipline when servicing the aircraft.

Because of the different forms of flake corrosion, the selection of the means and methods of protection can differ. For example, in places where the bonding strips on load-bearing elements in the aircraft's structure make contact, one may use an LSP coating [expansion not provided]. It is suitable for application on bonding strips as well as on spars, stringers and ribs. Another effective method of protecting load-bearing elements is through the use of U30MES-5 sealer. The affixing of the bonding strip to an intermediate angle is extensively used in practice.

At the present time, personnel in Air Force units are carrying out plans for winter combat training. Operational experience with aviation equipment under adverse weather and climatic conditions proves convincingly that the timely and high-quality conduction of preventive measures and the utilization of effective methods and means of protection make it possible for aviation specialists to successfully combat flake corrosion and service the equipment with a high degree of quality.

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PHYSICAL CONDITIONING OF FLYERS SEEN AS INDISPENSIBLE ASPECT OF TRAINING

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[Article by Lt Gen Med Serv N. Rudnyy, professor and doctor of medical sciences: "Do You Wish To Fly for a Long Time?"]

[Text] At the age of 60, meritorious test pilot of the USSR and twice Hero of the Soviet Union Maj Gen Avn Vladimir Konstantinovich Kokkinaki underwent his medical board in the Central Scientific Research Aviation Hospital.

"Fit for flight duty without limitation." Such was the conclusion of the doctors regarding his state of health.

In the reception room, Vladimir Konstantinovich was beset with questions from the young pilots. They were most of all interested in how, in his opinion, one could achieve such flight longevity.

"Exercise!" answered the test pilot.

Very valuable advice! Indeed, in many ways the combat aggressiveness of the airman depends upon his health, his physical endurance and high degree of fitness for work. Especially so, in view of the fact that in the process of flying or the application of a modern aircraft in combat, the pilot must, apart from receiving and processing a great volume of information, carry out complex mental operations while combining them with precise, coordinated movements, make calculations rapidly and retain much initial data in his memory.

The forced rapid tempo of flight activity under conditions of a severe limitation on time, the complexity of spatial orientation without being able to see natural reference points and the limitation of movement impose ever-growing demands on the health of the pilot. Moreover, in flight, the crew is subjected to the effects of a whole number of detrimental factors. These circumstances present great problems in the matter of the professional training of flight personnel, the improvement of the psychological reliability of the organism and flight longevity.

The automation of the airman's work noticeably reduces the active movements, which in turn leads to a disruption of the biological rhythm of the operation of the entire organism. While monitoring his work automatically onboard the aircraft, the aviator is in a state of severe neurological and emotional tension.

In flight, a man's brain and heart react first of all to a reduction in motor activity and increased nervous activity. This is why, as medical research will testify, physical exercise is of tremendous significance for flight personnel under modern conditions. Many young aviators, however, underestimate the significance. They have a sceptical attitude toward hiking, cross-country morning runs, gymnastics and tennis and prefer peace, comfort and riding in the car.

In connection with this, for example, Professor G. Kositskiy notes: "A haughty disdain for physical work is a tenacious vestige in our psychology. There exist those people who suppose that the solid position that they occupy in society must be combined with outer solidity and respectability which is sometimes understood to be excessive weight and an imposing form. Having achieved a well-known position, some people begin to think that working with their muscles is below their dignity. The aspiration of such a person is to secure for himself a car as soon as possible. When this has been accomplished, he becomes a slave to three spring seats: his chair at work, an overstuffed chair at home and his soft seat in the car. If, on Sunday, such a person walks three times around his dacha in the course of a half-hour, he is ready to believe that he has rendered nature its due and received a charge good for a week."

True words! A scornful attitude towards one's health has at all times led to harm, and all the more so in our age of rapid scientific and technical progress. Since days of old it has been well known that movement per se can by its own action replace any medicine, but all the world's healing methods cannot replace the effect of motion. This idea belongs to Tissot, the notable French physician of the eighteenth century.

A high degree of activity, including mental, is for a man the best regulator of the organism. It makes it possible for the heart, lungs, intestinal tract and endocrine glands to adapt rapidly to changing conditions in the environment and to function normally under the most complex conditions. "Movement is a constantly pulsating fountain of energy," said the Greek writer Plutarch.

It is well known that people who engage in physical culture and sport undergo a rebuilding of their organism, and their compensating functional capabilities increase: their capability to endure fluctuations in the environment improves, their resistance to various types of disease--colds, primarily--increases and they become more hardy and fit for work. If one considers that engaging in physical exercise brings positive emotions and cheerfulness and creates a good mood, then it is entirely understandable why a man who has experienced the joy of physical labor will never part with sports.

Emotional and intellectual strengths acquire primary significance in the life of modern man. Nervous strain has increased considerably today, and shortcomings in physical mobility are sensed acutely. This is likewise characteristic of people who are connected with flying. There are, however, few who can feel the pernicious effect of physical deconditioning on their organism. When a person is without food, he feels hunger, and without sleep he feels sleepy. These signals cause him to compensate for the lack of food and sleep. In the absence of motion, however, a person notices no signals. On the contrary, he perceives rest as a state of comfort that brings satisfaction. In actuality, he undermines his physical strengths and health, and, as a result, he grows decrepit.

A pilot must constantly devote attention to physical culture not only at those times determined by the commander, but he must also use any opportunity toward this end, including the time spent on combat duty or in the comparatively long time waiting for a sortie, in order to take the static stress off his organism. It has been proven by science that low mobility (or hypodynamism) is one of the major risk factors contributing to diseases of the cardio-vascular system and the intestinal tract complicated by neuroses. Incidentally, among the other factors which create the prerequisites for the development of serious diseases are the use of alcohol, smoking and an irrational diet.

The reduction in the amount of energy expended by an organism as a result of a decrease in physical activity, a negligent attitude toward participation in physical culture and sports and an increase in the intake of high-calorie foods leads to a disruption in the exchange of substances. This is manifested in excess weight and obesity which contribute to the appearance of such serious ailments as hypertonic and ischemic diseases, atherosclerosis, sugar diabetes, cholelithiasis and others.

Included in the task of physical training is the formation of emotional stability among flying personnel, the development of attention and the precise coordination of movements and the development of spatial-orientation skills and fast reactions. In addition to this, physical exercise helps the pilot's organism to withstand such adverse factors of high-speed flight as G-forces, motion sickness and hypoxia. It also helps the organism to breathe easier under excess pressure and to endure a hypodynamic regimen.

The physical training of flying personnel is subdivided into basic and supplemental. The first is conducted during combat training activities, the second is specified for certain periods in combat improvement; for example, during conversion training for a new type of aircraft, mastery of low-level flying, mastery of complex combat tactics and after long breaks in flying activity.

Considering the great significance of physical culture and sport in training aviators, commanders at all levels should devote constant attention to them. Meanwhile, there are some who forget about this. I can recall a meeting with young pilots--academy graduates. Some of them spoke about the poor organization of sports. In the academies they were not trained in gymnastics, light athletics nor other forms of sport. They worked out very little on the trampoline and the Rhine wheel. It was also discovered that insufficient attention was being devoted to physical culture in the unit where they were serving as well. Classes were only conducted from time to time, and this had an effect on the aviators' professional training.

For example, the flight commander has many times reported to the squadron commander that Lt Ye. Siderov maneuvers in aerial combat with a lack of energy and is late in opening fire. It turned out that the young pilot had a poorly developed resistance to G-forces. The oscillograms also confirmed this. Flying a modern aircraft, as is well known, demands good physical conditioning. The other young pilots also had shortcomings in their physical development. In accordance with this, the classes for strengthening the young pilots' organisms had to be restructured. In this connection it must be stressed that a significant place in the psychological training of the pilot must be afforded physical culture and sport as a powerful formative means.

We will examine one of the directions of current interest in aviation psychophysiology--the problem of flying personnel's conversion training to a new aircraft. Experience testifies to the fact that in mastering flying a new type of aircraft, the aviators encounter certain difficulties associated with restructuring their skills in flying, navigation and tactics as well as with overcoming heightened emotional tension. The psychophysiological reactions of the pilot's organism during this period are manifested in the rapidity of heartbeat and respiration, an increase in arterial pressure and the body temperature and changes in the exchange of substances. Research has confirmed that fact that the restoration of psychophysiological reactions occurs 40 to 50 minutes after the completion of the flight, while in an aircraft of a type which has already been mastered, these reactions return to the norm after 15 to 20 minutes.

In the process of the flight personnel's conversion training and their training for executing complicated forms of flying, an important role is assigned not only to the commanders but also to the flight surgeons and the chiefs of physical training. Their duty is to select that form of sport which should be taken up by this or that aviator based on the particular characteristics of his state of health and his physical development. For example, the large shifts observed in the frequency of heart contractions among some pilots can cause a slowing-down of the inhibiting-stimulating responses and, as a result, a deterioration in flying skills and the combat application of a airplane or helicopter. Instructive in this respect is the quality of execution of simulator flights after stress--a 1,500-m run in 6 minutes. The fatigue that appeared among the insufficiently conditioned pilots considerably hindered their work with the radar gunsight when mastering intercept missions. For the well-conditioned aviators, however, such a run usually becomes their special warm-up before carrying out similar flight missions.

For reasons that are quite understandable, the degree of physical development is not a direct indicator of the level of the airman's combat training. Moreover, combat readiness and flight safety depend on this to a great degree.

Physical culture and sport help the airman to fortify his health and to raise even higher the level of his average biological norms. Necessary for this, however, is a solid character and the desire to conquer heights not achieved before and to overcome one's weak will.

Systematic classes in sports are necessary not only for strengthening the musculature. Physical stress is the best method of "unloading" unpleasant feelings and preventing illness.

It is well known what kind of irrevocable damage drunkenness and alcoholism inflict on society. They undermine the people's health and lead to a reduction in labor productivity. Unfortunately, the opinion is current that the ingestion of a small amount of alcoholic beverage is not harmful for a healthy person. Also very popular is the erroneous notion about the supposedly stimulating effect of alcohol on the organism. Practice shows just the opposite.

On a special trainer which imitates the elements of flying, an aviator was first helped to develop steady skills. After they were fixed, the specialists examined the quality of control and his ability to withstand various types of interference under the effect of alcohol taken in doses of 1 gm per kilogram of body weight. The

greatest reduction in the quality of flight work was observed in the first 3 to 5 hours. In this case, the perception of visual and aural signals was hindered, the speed of visual perception was reduced and the time required for eye-hand motions increased. These and other changes in the operator's activities began gradually to return to normal only after 7 to 8 hours and approached the initial level only after 12 to 15 hours.

As recent scientific data indicate, the ingestion of even 10 g of alcohol is accompanied by a noticeable deterioration of certain indicators of fitness for work. Alcohol reduces the thinking processes, worsens attention, lower resistance to oxygen starvation, G-forces, high and low temperatures and contributes to rapid fatigue.

Among the harmful habits which have a negative effect on people's health, the most popular is smoking. The scientists of many countries have conducted numerous studies which have confirmed the close connection between serious diseases and the effect of nicotine. For example, with prolonged smoking, a chronic poisoning of the nervous system is observed, while more often one encounters diseases of the cardiovascular system, the lungs and upper respiratory tracts and ailments of the digestive organs. In addition to the nicotine, the smoker brings into his body carbon monoxide, hydrogen sulfide, methanol, mercury, furfural and other toxic substances along with the smoke. They disrupt the normal rhythm of the heart, the organs of respiration, the central nervous system and the biochemical processes. This also has a negative effect on man's professional activity.

It has been proven that smoking is one of the factors contributing to the premature development of fatigue--it reduces the body's resistance to G-forces, oxygen starvation, motion sickness and reduces the ability to overcome illusions in flight.

Australian scientists conducted research and confirmed the fact that three cigarettes smoked before a flight reduce visual perception by 20 percent and the speed of motor response by 25 percent. The perception of red and green colors by the crew is particularly noticeably disturbed as well as adaption to the dark. In connection with this, the aviation companies in the country adopted a decision in accordance with the scientists' conclusions. On the basis of this decision, pilots in civil aviation are allowed to smoke their last cigarette no later than 8 hours before takeoff.

A pilot with a strong character and firm will is capable of protecting himself from harmful habits and strives to strengthen his health by means of physical training, to achieve the summit of professional mastery and to extend his flight longevity. The sooner he undertakes this, the greater the return will be.

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ENGINE PROBLEMS TRACED TO CARELESS MAINTENANCE

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p 42

[Article by Engr-Maj V. Zav'yalov: "The Propeller Pitch Increased"]

[Text] Specialists from the technical maintenance unit carried out planned routine maintenance on the aircraft. In accordance with the testing schedule, Capt Tech Serv A. Shelkovnikov checked to see how the engines were operating. All parameters were within prescribed limits at idle and when a check was run on the automatic propeller-feathering systems. When the throttles were moved smoothly from minimum power to the take-off regime, the instruments showed no deviations from the established norm. When the throttles were moved vigorously, however, an oscillation appeared in the parameters of one of the engines. What was the problem? Capt Tech Serv A. Shelkovnikov and Engr-Maj V. Vitskov were assigned the task of determining what was wrong.

Where did they begin? First of all they used the schematics to carefully inspect all assemblies in the automatic fuel system which could influence changes in the parameters. The pump sensor alerted the specialists.

"We have to replace it," suggested Shelkovnikov. "That will speed up returning the aircraft to the squadron."

"We could do it that way," answered Vitskov, "but then we would have to check the unit carefully again in the laboratory. Is that efficient?"

Something similar happened one time in a neighboring unit. At that time, Warrant Officer A. Kostin washed out the filter of the fuel-control unit [KTA] and noticed that the color of the fuel changed. He reported this to Capt Tech Serv I. Mikhaylov right away. Soon afterwards they delivered a sample of the fuel to the laboratory. A check showed that oil had gotten into the fuel.

The specialists once again carefully studied the specifications and instructions, and they decided to remove the fuel-control unit. The engineer intervened, however. He had determined that the specialists did not pay attention to one of the lines in the corresponding instructions in which the rates of oil consumption in various periods were specified. If they had analyzed the operation of the throttle valve and the bushings in the fuel-control unit more carefully, they would have noticed that when the engine was shut down, the fuel pressure dropped sharply, but the oil

pressure remained unchanged for some time. For this reason, it was possible for a small amount of oil to seep past the gap between the throttle valve and the bushing. If the oil consumption did not exceed the specified norm, the unit was considered to be in good repair. This meant that its premature removal would not be justified.

Was a similar thing being repeated in the pump sensor of the turboprop engine? Officers A. Shelkovnikov and Vitskov used portable and laboratory instruments to measure the parameters of the automatic fuel system and the propeller governor several times. An in-depth analysis allowed the specialists of the engineer aviation service to draw a conclusion: the adjustment of the maximum frequency of rotation of the propeller rotor had changed, and the aircraft technician had not noticed it. Replacement of the unit was not required.

On what did the officers base their conclusion? They proved that when the throttle was moved evenly, the delivery of fuel to the engine rose with the increase in engine revolutions. Consequently, the engine output gradually increased as well. Because of this, the propeller pitch increased without delay and its parameters corresponded to the specified norms.

It was another story when the throttle was moved abruptly. In this case, the fuel sensor delivered fuel to the engine faster and the output of the turbine rose right then. This being the case, the power consumed by the propeller remained the same, although not for long. Due to this unbalance, the frequency of rotation of the pump sensor increased sharply.

When the mechanical frequency of rotation of the pump sensor increases sharply, the delivery of fuel to the engine is reduced and the output of the turbine drops. It is at this moment that the governor sends the command to increase the pitch of the propeller. Naturally, all of this has an effect on the pressure of the fuel in front of the engine's fuel nozzles and in the pressure of the oil in the torque-meter. This does not permit an increase in power. Now the pump sensor is forced to readjust to increase its own output. At this time the governor has already reduced the pitch. This is how the oscillation in the parameters arises.

Could the specialists have prevented this phenomenon? Undoubtedly. If the technician had checked the system more carefully, he would have noticed the instability of the parameters by the fluctuation in the needles of the cockpit indicator and would have readjusted the governor of the automatic system. This, however, is precisely what did not happen.

The engineers reminded the engineer aviation service personnel about the requirements of the corresponding instructions and provided recommendations on caring for the automatic fuel system and the adjustment points.

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EFFECT OF ATMOSPHERE ON SATELLITE ORBITS EXPLAINED

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[Interview with Yu. Luk'yanov, candidate of technical sciences: "Predicting the Motion of Satellites"; date and place not given]

[Text] Readers S. Taranukha, V. Kovalevskiy and others ask how the orbit of a satellite is calculated and how long a spacecraft can exist. They write to ask why some satellites burn up in the atmosphere and others end their own existence. We asked Candidate of Technical Sciences Yu. Luk'yanov to respond to these questions.

[Question] Yuriy Alekseyevich, since the question concerning the calculation of a satellite's orbit is a common one, would you begin with that?

[Answer] First of all, I have to say that a satellite's orbit changes its shape, dimensions and position in space due to the influence of a whole number of factors. Figuratively speaking, it has a life like a person, changing irreversibly as it ages. Calculating the orbit for a certain specified time in advance is as complicated as predicting the economic development of society. Entire volumes of special literature have been written on this chapter in the theory of flight. In my answer I will be able to speak of the most significant points and only in the most general terms.

The motion of a spacecraft can be described by a system of differential equations of the sixth order. For this reason, it is enough to know six independent parameters, or initial conditions of motion, in order to make a unique determination of the flight orbit. They can be, for example, the coordinates of the satellite and their rate of change at a particular moment of time. In practice, data from the instrumentation control complex is usually used: the distance from the instrumentation center to the spacecraft, its rate of change and the attitude and speed of the satellite relative to certain axes. With the help of certain mathematical relationships between the elements of the orbit and the results of measurements, the six initial conditions are found. More often, fewer than six parameters are determined, but then they are measured not at one but at several instrumentation centers. Moreover, in an effort to reduce the effect of possible errors, we strive to obtain the greatest number of measurements of each parameter. For an excessive number of measurements, there exist certain methods of processing the information which make it possible to obtain the most reliable result in each specific case.

[Question] What can you say about the lifetime of an artificial earth satellite?

[Answer] In theory, we understand the lifetime of a satellite to be the time it achieves the so-called critical orbit on which it can maintain yet another revolution. How can one find the critical orbit, however? This question is complicated enough, both in theory and in practice.

A spacecraft inserted into a near-earth orbit will finally return to earth. In this case, two variants are possible: either the intentional braking of the spacecraft using its propulsion unit and a landing in a specified area or a spontaneous descent under the influence of the atmosphere which, in the final result, leads to the end of its existence. In both cases, communications with the craft are disrupted when it enters the dense layers of the atmosphere.

[Question] When does this happen?

[Answer] In the existing literature, the concept of an upper edge of the dense layers of the atmosphere is not strictly defined. Practice does show, however, that that it is located at an altitude of 110 to 150 km and depends considerably upon the ballistic coefficient of the spacecraft and fluctuations in the density of the atmosphere. For example, the lighter the craft or the greater its cross-section, the shorter its lifetime. Moreover, the altitude of its entrance into the dense layers of the atmosphere depends upon the shape and orientation of the orbit. The concept of a point of entry into the dense layers of the atmosphere can be arrived at in principle as the moment at which particular stresses or flight altitude is achieved. Convention is also observed here, however, since the point of entry for each type of spacecraft is unique.

[Question] How is the satellite's point of impact predicted?

[Answer] Irregularities in the aerodynamic effect and dissimilar densities and temperature resistances of various elements in the structure of the spacecraft result in the satellite's destruction at altitudes below 80 km, where the stresses reach their maximum. The spacecraft is broken up into a number of fragments which in their fall remind one of meteors. The greater portion of them burn up completely in the atmosphere. Nevertheless, the mass media from time to time report the fall to earth of fragments from this or that spacecraft. Such was the case, for example, with the American "Skylab" space station and the "Kosmos-954" satellite.

We have already spoken about the difficulties involved in determining a spacecraft's point of entry into the dense layers of the atmosphere. Suffice to say that an error here of one minute gives a deviation of 450 km in the point of impact. This is why in the most critical moments of tracking the satellite, practically all active and passive tracking facilities along the flight route are switched on.

[Question] This means that errors are the principle culprit in the difficulties involved in prediction. Please tell us about them in greater detail.

[Answer] Errors in the model of the atmosphere have the greatest influence upon the accuracy with which we can predict the attitude of a satellite over short periods of time. Practice testifies to the fact that there exists a discrepancy between the actual altitude profile of its density and the model. These disagreements can

be taken into consideration by refining the satellite's ballistic coefficient according to results from the processing of changes in the trajectory. This is only possible, however, within a narrow range of values for the altitude and only on the observable portion of the flight route.

There is one other source of errors--the change in aerodynamic characteristics, in particular, the drag upon a non-oriented satellite due to an unpredicted change in its attitude relative to the approaching air flow. For certain satellites, this coefficient can change several times. We will note that the utilization of up-to-date models when predicting the motion of any spacecraft over an interval of time greater than 24 hours makes it possible to determine the time of its ballistic existence with an accuracy of 15 to 20 percent.

[Question] What methods do we have for improving the accuracy of prediction?

[Answer] Scientists here see two basic directions. The first consists of refining the model of the atmosphere and developing methods for predicting variations in its density determined by solar and geomagnetic activity over short periods of time. The second consists of developing a model of unguided motion at low altitudes for the determination and consideration of the aerodynamic characteristics of a satellite during the final stage of its flight.

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COLOR ATLAS UTILIZED IN SPACE OBSERVATIONS

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[Article by A. Tishchenko, candidate of technical sciences: "Color Surveys of the Earth"]

[Text] The consumers of information from space are today more and more interested in color photographs. Their color frequently tells a specialist a great deal. In particular, it makes it possible to judge the composition of the bioproductive zone--phytoplankton or zooplankton--and evaluate its biomass and determine its depth in the shallow coastal waters along the continental shelf. The color likewise provides a representation of the many hydrophysical parameters of the waters.

This is why the ATs-1000 color atlas developed by the Leningrad Institute of Metrology imeni D. I. Mendeleev was included among the scientific equipment onboard the Salyut-7 station. In this atlas are 37 pages, on each of which are displayed standard pigments of various shades. There are a total of 1,000 such shades. The atlas assists in making quantitative evaluations and interpretations of the chromatic features of natural objects observed from space.

We will recall that the precursor of the present atlas had only 192 pigments. Is this many or few? The human eye can distinguish up to 90,000 shades of color. It is very complicated, however, to create such an atlas on the basis of existing technology and the requirements of colorimetry (coloristics is a new scientific direction associated with the study of the chromatic peculiarities of the environment). Suffice to say that the majority of dyes are not color-fast. In combination with white and black pigments, they shift from their initial color. Moreover, it is always more difficult to work with a large dictionary than with a small one. This atlas is just such a dictionary, except that it is for interpreting colors, not words.

One of the characteristics of the work in orbit is the great speed with which the objects under observation move. For this reason, the time available to the cosmonaut for recording the colors with the aid of the atlas is very limited. In addition to this, it is very difficult for nature to be "recognized", since it possesses a great variety of colors, and this makes it more difficult to search for the corresponding standard in the atlas. This is where good training is required. For example, cosmonauts A. Berezhovoy and V. Lebedev took a special training course in coloristics of natural features before their flight. This helped them greatly in their work in orbit.

What kind of practical results do the scientists suppose they will obtain? The rapid and efficient quantitative determination of the color of natural objects and their surroundings first of all serves the interests of agriculture, forestry, geology and other sectors whose specialists can at times, while in the flight control center, receive the visual impressions of the space observer during communication periods. This makes it possible to evaluate the situation more reliably and to interpret correctly the information arriving from orbit.

How did the cosmonauts on the first expedition to the Salyut-7 station work with the atlas? Observing the ground through a window, they located three agreed-upon color coordinates in the atlas. Each page in the atlas corresponds to one color tone, and the line and the column indicate the saturation and luminosity, respectively, of the standard selected. These three numbers and the associated information they reported to earth.

The space watch of A. Berezovoy and V. Lebedev showed that the "Biosphere" program of visual and instrumental investigation of the earth's natural resources, developed by the "Nature" State Center, was supplemented by yet another interesting method of research. It augments and enriches spectrometric measurements and the multizonal and color photographs taken from the long-term orbital station.

The capabilities of man's vision are experimentally checked by the crews of the Salyut station. The program of visual observation of the longest expedition also included tests to determine the visual threshold of color recognition of natural color test reference points with low color contrasts. The cosmonauts, for example, were given the task of observing color reference points in a test range in the Northern Caspian which had been well-studied during the conduction of subsatellite experiments on laboratory ships and on aerovisual expeditions.

In their more than six months in orbit, A. Berezov and V. Lebedev efficiently transmitted back to earth about 40 coloristic observations. At the present time, the information received is being studied and processed. Large-scale color photography was conducted in parallel, and this will make it possible to improve the method of photography and increase the efficiency of visual and instrumental research in the interests of specialists from various fields of earth science and from the country's economy.

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UNITED STATES CRITICIZED FOR MILITARIZATION OF SPACE

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[Article by Engr-Col E. Buynovskiy, candidate of technical sciences: "The Pentagon Is Dying To Get into Space"]

[Text] In recent times, reports on the preparations being made in the United States for the creation of a new theater of military operations--the space theater--have begun to appear more and more frequently in the Western press. As before, this is being presented under the aegis of "national security." Concealing itself behind the "Soviet military threat," imperialism disguises its aggressive essence, insidiousness and hypocrisy as well as its desire to achieve worldwide domination by any means.

As early as 1957-58, the U.S. Department of Defense planned to deploy a number of military-strategic space systems. At that time, experts were given the task of creating a complex that was capable of bombarding ground-based targets (the "Dyna Soar" program and Project "Bambi"). In accordance with the "Saint" program, methods were developed for identifying, intercepting and destroying enemy targets in space. Only the absence of the corresponding scientific and technical potential compelled the Pentagon warriors to refrain from the idea of keeping the globe under a constant gunsight.

In all the subsequent years, while creating and perfecting spacecraft for reconnaissance communications and navigational and meteorological support, the Pentagon strategists did not forget about the development of space weapons for pressure and aggression. And now, in our day, these timid notes of vague content are being replaced by entire tracts on the most effective weaponry.

As early as the end of the 1970's, during the time of President Carter, the magazine BUSINESS WEEK formulated with sufficient clarity the position of the Pentagon in relation to the potential possibilities of near-earth space: "He who succeeds in seizing control of space--this main arena of future wars--will be able to decisively alter the relative strengths, and this will be tantamount to the establishment of world domination."

In 1980, the reputable magazine, AVIATION WEEK AND SPACE TECHNOLOGY, ran an article entitled "Pentagon Studies Possibility of Building Military Station in Space with Laser Weapon Onboard." This was not polemics on the subject of whether or not there

would be deadly weapons in space, but rather a purely American practical approach to deciding just what kind of laser weapon would be most suitable for destroying various targets, with the complaint, which was true, that investigative studies in this direction were being carried out with insufficient intensity.

The directive of the President of the United States published in July of last year regarding the national space policy provided an impetus to this new splash of imperialist hysteria in the United States. This document has already been discussed in the press. Nevertheless, it would be worthwhile to direct attention to one fact. The directive asserted that the space systems of any country are its national property with the right of unlimited movement in near-earth space. Intentional interference in the operation of these systems would be seen as an encroachment on sovereign rights. Right in the document, literally between two paragraphs, it states: the United States will deprive any enemy of the capability for utilizing "systems of space basing intended for rendering support to hostile armed forces."

How categorically--"will deprive"! As it turns out, only the satellites of the United States have the sovereign right to fly unimpeded. The others are deprived of this right. Just try to prove that the information obtained will not be used in the interests of the armed forces. Really, this is a truly impudent intention of achieving world leadership in space!

How did the U.S. Department of Defense perceive the president's instructions? The deputy secretary for scientific research studies of the U.S. Department of Defense reported on this in September 1982. According to his statement, serious attention was being devoted to the creation and development of satellite systems for communications, navigation, observation of the surface of the oceans and detection of the launches of ICBM's. The speech, in particular, dealt with the creation of the "Milstar" satellite communications system, the information from which will be utilized by strategic nuclear forces, the Navy, the quick-reaction forces and the Air Force. It was likewise proposed that the functions of the "Navstar" navigational system be expanded after equipping it with "(Ionds)" instruments for the detection of nuclear blasts.

We will note that in accordance with the "Reagan Directive," all these devices are space systems "for the support of armed forces." Remember, however, that they indeed are of American origin. Consequently, do they have all the rights of unimpeded functioning?

Much attention was devoted in the report to the potential for using the Space Shuttle multipurpose transport spacecraft in the interests of military operations. As of late, the press in imperialist countries has been informing the readers in detail about the long-range plans of the U.S. Department of Defense associated with this promising transport system. Research is being conducted into the creation of the "non-nuclear antisatellite potential" in an effort to "neutralize the Soviet threat." What does this mean, and what Soviet satellites are they talking about? Perhaps they are talking about satellites which make it possible to listen to the radio or watch television broadcasts in remote regions of the planet, or about satellites which render assistance to ships or aircraft that have suffered misfortune (American ones too, incidentally), or about satellites which predict the weather and search for mineral deposits?

There are questions which naturally arise: what threat can these satellites offer to the land, sea and aerospace forces of the United States? Why does the Pentagon need an antisatellite system? In this case, the American military strategists' facts do not tally.

Laser weapons are being built under the constant attention of the Pentagon. They are counting on using two kinds of lasers--long-wave and short-wave. In the opinion of the specialists, both types have great potential.

In fiscal year 1983, the United States Congress apportioned 47.6 million dollars for the creation of a short-wave laser--20 million dollars more than the Defense Department asked for. An additional 20 million dollars was apportioned for research in the area of determining the vulnerability of this formidable weapon and evaluating its combat effectiveness. If it becomes necessary, the the Department of Defense will apportion addional funds for this purpose.

It is worth noting that among the factors determining the effectiveness of application of space-based laser weapons, mention is made of the "capability of the Russians to insure the hardened defense of their potential targets." What he had in mind by "potential target"--a peaceful objective or weapon of attack--the reporter did not consider necessary to explain. This was not in his interests.

All of this somehow does not square very well with the assertions of the deputy secretary of the U.S. Department of Defense regarding the fact that "we are not militarizing space," "we are not preparing to turn this peaceful shuttle craft into a platform for locating weapons" and that the actions of his department do not contradict the "existing international legal system." They do contradict it. And how!

In recent years, the U.S. Department of Defense has undertaken a number of specific practical measures directed at further centralizing its control. In 1979, within the framework of the Air Force's weapons systems command (AFSC), a directorate was formed whose basic mission is the creation and operation of satellite systems for reconnaissance, communications and meteorological and navigational support. Then a space directorate was organized within the department: a committee for operations, coordinating all programs for the study and utilization of space; and a flight control center (C³OC) with the functions of directing military satellites and controlling the flights of the Space Shuttle in the interests of the Defense Department. Courses for training the future directors of military space operations have opened up at the Air Force technological institute.

All of these organizational measures were conducted within the framework of preparing and creating an Air Force space command which officially began functioning on 1 October 1982. As an observer in the magazine AVIATION WEEK AND SPACE TECHNOLOGY asserts, the decision regarding its creation was dictated by the ever-growing dependence of the United States' armed forces on space systems and the supposed new threats from a potential enemy. Without specifying how and by whom the United States is being threatened, the magazine further emphasized the fact that "operations in space have achieved such a stage of maturity and have become so important for the Air Force that these operations must be afforded the same degree of significance as the operations of strategic, tactical and air-transport operations."

Such is the general trend of the Pentagon's policies in the matter of mastering and utilizing space.

The Reagan administration needs the hackneyed slight-of-hand of the "lag" of the United States behind the USSR in the military respect first of all in order to maintain the unprecedented speed-up in the arms race.

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EXPLOITS OF KGB BORDER GUARDS RECOUNTED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 83 (signed to press 1 Apr 83)
p 49

[Article accompanying back-cover photography; author's name not given: "A Border Under Lock and Key"]

The expanses of our motherland are immense and its border great. It stretches for more than 60,000 km along the boundless Arctic, the dense Ussuri taiga, the gray slopes of the Pamirs and Tyan-Shan, the scorching desert sands and along rivers, seas and oceans. At any time, day and night, in burning heat and in cruel cold, the troops of the USSR KGB vigilantly protect its borders. Created 65 years ago according to a decree of the Council of People's Commissars, "On the Establishment of a Border Defense Force," signed by V. I. Lenin, these troops have blazed a glorious heroic path under the guidance of the CPSU and the Soviet government.

In the years of the Civil War, the border troops steadfastly and courageously fought with internal and foreign enemies of the socialist fatherland and waged an aggressive battle with foreign agents who tried to penetrate our country from abroad. According to data which are far from complete, in just the 20-year period before the war, from 1921 to 1941, these soldier-border troops apprehended 932,000 border violators.

The high moral qualities of the border troops were particularly clearly displayed in the harsh years of the Great Patriotic War. The soldiers of the border posts were the first to engage the Fascist invaders in battle and offered them heroic resistance. With immeasurable steadfastness and daring, sparing neither blood nor their very lives, they defended Moscow and Leningrad, Sevastopol and Odessa and fought courageously in the Kursk Bulge, in the battle for Berlin and in the defeat of the Kwantung Army.

For their great deeds in combat in the past war, 150 soldier-border troops were awarded the title of Hero of the Soviet Union, and about 13,000 were presented with orders and medals.

The Law of the Union of Soviet Socialist Republics "On the State Border of the USSR," adopted at the seventh session of the ninth convocation of the USSR Supreme Soviet in November of last year is a new manifestation of the concern of the Communist Party and the Soviet government for the territorial integrity, political independence, sovereignty and unity of our state.

Vigilantly and reliably the border troops guard the boundaries of our country, and among them are our glorious pilots.

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